

The Herbs  
of  
The Field.

308

Margaret White

From M. J. J.

New Year's Day 1860.

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Ms. Regent's Room

by Charlotte Mary Yonge



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THE  
HERB OF THE FIELD.

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“CHAPTERS ON FLOWERS,”  
IN THE “MAGAZINE FOR THE YOUNG.”

“And the earth brought forth grass, and herb yielding seed after his kind, and the tree yielding fruit, whose seed was in itself, after his kind: and God saw that it was good.”—*Genesis*, i. 12.

“By His care the tender grass  
Springs where flock or herd shall pass;  
He the riper blade assigned  
For a treasure to mankind.  
So might earth her store impart;  
The new wine cheer man’s sinking heart;  
So with oil his brow might brighten,  
Bread his sinking spirit lighten.”—

*Psalm civ. Oxford Psalter.*

BY THE AUTHOR OF  
“THE KINGS OF ENGLAND,” “LANGLEY SCHOOL,”  
“SCENES AND CHARACTERS,” &c.

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## P R E F A C E .

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THESE Chapters must not be considered so much as a work on Botany, as an attempt to bring the wonders of the vegetable world under the notice of children, and lead them to take interest in the plants around them.

Of their irregularity the author is well aware. They were begun with a view to the flowers of each month; but the necessity of some plan, caused each chapter to contain a sketch of a natural order; in which, however, she begs she may not be supposed to include the "last bells of summer," or the "Christmas evergreens."

After the twelfth chapter, the Linnæan classes were gone through, in order to pick up such plants as had been omitted, and in arranging them for separate publication, the same order has been

preserved, as the earlier chapters are the easiest, and after going through them, a child will be better able to understand the latter ones.

Long words have been avoided as much as possible; and something of system and science has been sacrificed to the desire to give no formidable appearance to the page. It is hoped that there is nothing contrary to scientific botany, and that such as pursue the study further, will find their way smoothed, and that they have nothing to unlearn.

We believe that the want has been long felt, of a book on plants sufficiently free from botanical terms, and with amusement enough to give young children a pleasure in the knowledge of flowers; and it is hoped that the "Herb of the Field" may be found in some way to supply this need. A few of the chapters read to a child, with the examination of the flowers therein described, would probably excite its interest in the rest.

It was with a view to village children that the chapters were at first written, in the hope of rousing them from the indifference to wild flowers, that causes almost everything to be classed as a lily or a poppy. To teach them to value, and



observe, and perceive the wide-spread beauties in the woods and fields around them, is opening a great source of happiness, and leading them to a pursuit of a refining and softening nature, one of the best of the subordinate means of cultivation.

And it is very easily done. To ask if they know the name of a plant, to notice the pride of their Sunday nosegays, to reveal some of those marvels they have never perceived in the interior of a blossom, is a sure way to produce delighted smiles and animated looks; and simple lessons on natural objects are certain to be enjoyed and remembered. Or when connected with the subject where all teaching begins and ends, there is surely no means better suited for showing to young minds at once the mercy and majesty of the Creator, than the display of the exquisite loveliness and perfect contrivance of those minute plants, so common that they have hitherto passed them by without heed.

It is for such readers as these, who will never be likely to have time or means for the study of complete botanical works, but who nevertheless take delight in knowing intimately the dwellers in meadow, wood, or wayside, that the classifi-

cation of English plants has been given at the end, hoping that they may be thus assisted in learning the names of the fair forms that refresh their eyes.

*May 7th, 1853.*

## BOTANICAL TERMS EMPLOYED.

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Pistil—the central point of the flower, which becomes the seed-vessel.

Stigma—the top of the pistil.

Style—the column of the pistil.

Germ—the bottom of the pistil, containing the seed.

Stamens—the cases of pollen, supported on stalks.

Anther—the case containing pollen.

Pollen—the dust of the anthers, which makes the germ fertile.

Filament—the thread-like stems that support the anthers.

Corolla—the whole case in which the stamens and pistil are contained, usually the coloured part of the flower.

Petal—a single leaf of the corolla.

Nectary—the honey-cup in the corolla.

Calyx—the green cup enclosing the corolla.

Spathe—a sheath like that of a daffodil.

Receptacle—the bottom of the calyx, or top of the stem on which the flower grows.

Superior corolla—a corolla growing above the germ.

Inferior corolla—growing below the germ.

Capsule—little purse, the case where the seed is contained.

Bract—a leaf growing at the foot of the flower-stalk.

Cotyledon—a seed-leaf, which springs up first, then falls off.

Alternate leaves—those growing by turns on opposite sides of the stem.

Serrate leaves—those notched like a saw.

Linear—long narrow ones.

Pinnate—winged, such as vine leaves.

Cyme—a head of blossom, like elder.

Umbel—a head like hemlock.

Fronc—a fern, or sea-weed leaf.

Imbricated—scales growing one over the other, as in a fir-cone.

# THE HERB OF THE FIELD.

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## CHAPTER I.

### FEBRUARY FLOWERS.

#### THE SNOWDROP AND CROCUS.

EVERYONE loves flowers, and well we may, for there is nothing on earth so beautiful or so pure as they. The choice rare flowers of hotter climates, are some of the most delicious of the luxuries enjoyed by the rich; the trim, bright garden-bed is the delight of many who find little to cheer them elsewhere; even in the close and smoky town a few plants are cherished like darlings, and the glorious multitudes that are spread in the woods and valleys form no small part of the pleasures of the country child.

We may well be thankful that our Maker has given us such plenty of these fairest among His works, showering them upon us in such profusion, as to show how great must be the power and the kindness of Him who made every plant in the field before it grew, arraying them more richly than Solomon in all his glory. He is a kind father who provides for the pleasure and amusement of his children, as well as for their safety and comfort; and so those who delight in sweet flowers, should return especial thanks for the loving-kindness which has provided such joys for them.

Perhaps it may be some assistance in rendering our thanks for these, His beautiful works, to be led to examine a little into their structure, and the wonderful perfection of their parts, of which many who admire their brilliant colouring are very ignorant.

We will begin with a February flower, which all are glad to see, when it first pushes up its green case above the dark mould, and gradually opening, shows its pure white drop of a bud, hanging on a tiny stem, and at last opening into the delicate bell of "vernal green, and virgin white."

Well, then, take a snowdrop, and if you can find it in your heart to do it, and if it can be spared out of the garden, pull it up by the root; for I want to tell you about it from beginning to end, from the top of the little green banner that waves above the white bell, down to the last fibre of the strings at the bottom of the root.

It will be the best way to begin with the root, the round, hard root, which is called a bulb, and which, if you cut it in two, you will find to consist of a number of flakes, or coats, fitting closely one over the other. An onion has a root of the same kind, as you must have often seen. If you had cut open this root in the end of last autumn, and looked at it with a strong magnifying-glass, you might have seen the whole tiny snowdrop-plant, leaves, stem, blossom, and all, lying tightly curled up safe within all the numerous outer coats, waiting for the first breath of spring to push its way out into the air.

The fibres, or strings, that hang below, are so many mouths with which the plant sucks nourishment out of the ground; the tall, sword-shaped leaves, which all spread out from the root, may be said to be the means

by which it breathes, for they conduct the air into the numerous tiny air-cells of which the plant is full ; and a plant, as you well know, can no more live without air, drink, and its own kind of food, than you can. Next comes the one long green stem, with its moist, juicy inside, through which the air and sap are conducted to nourish the blossom. At the end is a sort of sheath, in which the blossom was safely packed up when first it budded forth, until, as spring came on, the bud swelled and swelled, till the sheath could hold it no longer, but opened at the side, and let the round bud drop out and hang down by its little slender footstalk.

Now comes what we call the flower ; and here you must learn several hard names, if you wish to be able to understand what I am going to tell you about plants. The prettily coloured, or white leaves of a flower, are properly named petals. Of these in the snowdrop there are six, three larger ones outside, curved and perfectly white, and three lesser ones within, with a notch in the middle, and marked with green. That is, if you have taken a single snowdrop ; if you have a double one, I can go no further, for there the petals, which are of no real use except to protect the important parts of the flower within, are so multiplied that they have used up all the strength of the plant, and even consumed these really useful parts ; so that, as everybody knows, a double flower never produces good fruit, but only rejoices in its own finery for a time. Not unlike some people that I could tell you of.

But we will suppose you have a good, quiet, modest snowdrop, with its green and white robes in good order, and put to their proper use, of guarding and sheltering what is within them. Inside of the three green-marked petals, you will find seven little threads,

all perched upon a green cushion, called sometimes the germ, and sometimes the receptacle. The middle one of these is straight, with a forked top, and is called the pistil; the six others are the stamens, and each of them is surmounted by a sort of long narrow case, called an anther, filled with a kind of dust, named pollen.

This pollen, as the anthers open, is shed upon the pistil, and passing along it to the receptacle, there turns to seed; the petals die away, and the receptacle swells, day by day, as you will see if you watch carefully, till at last it grows to a capsule, like a bag, or rather a purse. You may have seen purses divided into compartments for gold, silver, and copper; and the capsule of the snowdrop is divided something in the same manner into three cells, each of them full of round seeds, and every one of these seeds has a minute plant wrapped up inside of it.

Happy the children who live where snowdrops grow wild, and very proud of them they are, for it is not often that they are so found; indeed, some people think that it is not an English flower at all, but has only made its escape, as we may say, from gardens. I know of a dell, in the garden of what was once a convent, which is full of these beautiful flowers, in such numbers, that one might gather for half the day without making it look much less white.

But we must take our leave of the "Fair-Maids-of-February," and go on to their first cousin, the crocus. the long thready leaves of which, with the white stripe in the middle, shoot out in readiness for spring, before even the Christmas holidays are over. In an early spring, crocuses are in blossom before the end of February, their dry withered sheath hanging down over the bulb, and their rich golden yellow flowers seeming



almost to reflect the brightness of the sun-beams, in their depth of rich, glowing yellow. And how the bees delight in rolling deep within them, seeking for the honey which is stored in the cup, or nectary,\* as it is called, at the bottom of the petals! All crocuses have six petals, bulbous roots, long narrow leaves, and a sheath; but they differ from the snowdrop in having no stem, and only three stamens instead of six. The pistil, too, has a pretty branching crown, called a stigma, and the petals are all of the same size and shape.

The brilliant yellow spring crocus grows wild in Syria, and has only been cultivated in England for about two hundred years. It shows its love for the bright sun of its native land, by only opening on sunshiny days, and closing up fast in frost and fog, though, like a sweet gentle temper, it is always ready to open again on the first encouragement.

Its brothers, in purple and in striped coats, are not quite so pretty to look at from a distance, though, when close to them, they are very elegant flowers; the long, forked, orange-coloured stigma of the purple one, shows off to great advantage with the colour of the petals.

The crocus root dies away every year after forming a new bulb, or sometimes two, close by its side, and thus the plant gradually changes its place till it comes quite out of the border where it was at first planted. The purple crocus is English, and grows in great quantities in the fields about Nottingham.

There are other sorts which blossom in the autumn, of which I will just mention the saffron crocus, which is grown in great quantities in Essex and Suffolk.

\* So called from Nectar, a sweet drink.

The stigma, which is very large, is picked off by women and children, and laid out on linen cloths to dry in a heated room, after which it is put in paper bags, and sold, to be used in many ways, one of which those who like saffron buns will soon recollect, as well as those who have to doctor their pet canary-birds in the moulting season.

Bulbous-rooted flowers have, then, as you should recollect, six petals; either six or three stamens, with anthers; one pistil, consisting of a germ, style,\* and stigma; usually straight, soft stems. without branches; leaves either growing from the root or on the stem; and sheathes in which the young blossom is enclosed.

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## CHAPTER II.

### MARCH FLOWERS.

#### THE DAFFODIL AND HAZEL.

WHO can pass by the 1st of March without a word or two of the Lent Lily, the beautiful yellow daffodil? The Latin name of the daffodil is *Narcissus*; and there was an old heathen story, that there was once a youth who was always admiring his own beauty, looking at his face reflected in clear pools and streams, (for it was before looking-glasses were invented,) till he was punished for his foolish vanity, by being changed into the flower which still hangs down its head, as he hung his over the water.

\* The style is the long stem of the pistil, and is named from the shape of the iron styles, or pens, which were used in old times for writing on tablets of wax.

Certainly he has not left off wearing a very gay dress, though I never yet saw him near the water, but always in copses and woody banks. How pleasant it is to see those multitudes of yellow flowers scattered all over the ground! And how delightful to gather them, blossom after blossom, and still it does not seem as if the numbers were in the least thinned! And then, when the hands are as full as ever they can hold, to tie the stalks up in a hard solid bundle, cut them all to one length, and make a present of the noble golden nosegay; or put it into a cup of water, or perhaps send it to market, where it may be bought by some town person, who does not often see a fresh flower.

I remember that my nurse did not always like my daffodil nosegays, because there were no leaves, and she said the flowers were too gaudy, but I did not think so; the six outer petals are so soft and delicate, and the deep yellow bell inside is so bright and beautiful, and has such a curious kind of sparkle upon it, and then its edge is so beautifully quilled and scalloped, I used to turn the flower upside-down, and fancy it a fairy's dress; the deep yellow bell her golden petticoat; and the petals above, her pale gauze robe, deeply cut; while her boddice was the green receptacle on which they grow.

The yellow petticoat is really the nectary or honey-cup; garden narcissuses and jonquils, which blossom later, have the nectary likewise, only smaller; and there is also another sort which grows wild in some places, called sometimes the poetic narcissus, and sometimes butter-and-eggs. The petals of this are quite white, and the nectary yellow, trimmed with red, and a very pretty flower it is, though I can never like it

quite as well as the old daffodil. Perhaps those do, however, who have known it all their lives as an old friend, and have put it into their first May garland.

Narcissuses and jonquils are often kept in glasses of water or flower-pots all the winter in the house; their bulbs put down long fibres into the water, and suck up juice enough for the support of the plant, so that it puts up its almond-shaped bud, spreads its long green leaves, and unfolds its yellow flower, so as to be the pleasure of all in the house. I have heard of a little sick boy in London, who laid on his bed close to the black smoky window, with no amusement but watching day after day how his three jonquils grew and budded, and when at last he died, he left them as his choicest treasure to a friend who had been kind to him.

Excepting the large nectary, the narcissus differs but little in structure from the snowdrop, as you will soon find by examining it. The brown sheath hangs withered behind the flower; the pistil and the six stamens rise like a fluted pillar in the middle of the nectary; the germ is round, and when ripe, becomes a capsule filled with seeds; and the leaves are long and narrow, growing directly from the root.

So we will leave the daffodil and its relations, and look a little further in the copse. What are these long, soft-looking tassels, hanging out of these dry sticks?

O, those are not flowers, those are pussey cats, says one child; they are cats' tails, says another; and I for my own part should call them catkins, though that is not a much wiser name, since catkin can mean nothing but little cat.

And pray what is the bush they grow upon? Ten

to one that few of you can tell me, unless, perhaps, you happen to remember that somewhere hereabouts last autumn, you picked a capital bunch of nuts, and have a guess that it must have been off this very bush. And so it was; and this is a hazel nut bush! But where do the nuts come from, and what have the pussey's tails to do there, since I never yet heard that cats were apt to hang up their tails to dry on hazel bushes? Nor do I think that these things are very much like them.

Ah! now you look very wise, you have a guess. Why should not pussey's tails turn to nuts, as well as apple blossom to apples? Let us see, then, what the catkin is really made of.

It is formed of a great number of little scales one over the other, some pale green, some buff, and some a little shaded with red, and within each of these scales there are some yellow things, eight of them, which yellow things are fast covering your fingers with dust. That dust is pollen, and those eight are anthers' stamens, only that they have no legs, properly called filaments, and the scales are petals, so that each catkin is in reality a string of tiny flowers.

After all they are but half flowers, for if you remember, it is the pistil, and not the stamens, of the snow-drop that turns to seed, and these anthers have no seed in them. Perhaps the pistil is in another part of the catkin. No, peep into scale after scale, and still there are nothing but anthers, so that we must look a little further to find the young nut.

See, a little lower on the branch, here is a hard brown bud, much like those that turn to leaves, except that it has a cluster of pretty crimson threads at the top, a sort of red feather in its cap. Here lives the

nut, here are the pistil-bearing flowers, for the hazel keeps its stamens and pistils in different blossoms.

Let the neatest hand and most delicate fingers pull off one by one the brown scales in which the bud has been guarded all the winter. Inside, there is first a quantity of soft hair to keep it warm, and in the midst are several very small green cups, each containing a tiny germ, on which grow two crimson threads, the stigma of the pistil. If you can manage to look at it through a magnifying-glass, you will understand it much better, and see that the little germ is very nearly of the shape of a nut.

The pussey's tails will shake off their dust, some of it will be carried off by the bees to serve as flour for their bee-bread, some will float away on the wind, and some will be caught by the crimson crest of this nest of little nuts. Then the catkins will wither and fall off, but the little nuts will swell and enlarge as the year advances.

The crimson stigmas will turn purple, and shrivel up, the scales will open, the cups will grow longer and more leafy, and the germs harden into outer shells, in which there grow at length the white sweet kernels. Each of these kernels is, as you remember, apt to break into two equal parts when the nut is cracked, and there is apt to be a stringy, scaly piece between them. This string is the young stem of the infant hazel, and if the nut was in the ground, and allowed to grow, the two halves of the kernel would produce two cotyledons or seed-leaves, which would be pushed above ground by the young stem.

I dare say you think that those two white, pleasant-tasting half-kernels may be put to a different use before ever they have time to make seed-leaves, or cotyledons.

What fun it is to pull them down from the tree, bunch after bunch, one, two, three, aye, sometimes half-a-dozen in a cluster! crack, crunch! Oh! I hope you have good teeth!

Something else has good teeth if you have not; the pretty little squirrel, with his bushy tail, likes to lay up a store of nuts for his winter hoard, and sit up holding them in his paws, and nibbling away the shell. So does the wood-mouse, who makes his nest in the moss under the tree. But how can the nut-hatch contrive, that pretty bird, with the grey back and black streak over the eye, he is as fond of nuts as the mouse or the squirrel, but he has no paws to hold them, so how can he get at the kernel, through that hard shell?

The nut-hatch chooses a chink between two stones, or in the bark of a tree, where he can firmly fix the nut, like a piece of wood in a carpenter's vice, and there he hammers it, tap, tap, with his strong beak, till he has broken out a hole large enough for him to extract the kernel.

Between the children, the squirrels, mice, and nut-hatches, to say nothing of the little, round, white maggots, which all like nuts, it would seem as if there might be few left to grow into fresh hazel bushes, and perhaps it is for this reason that the bush throws up shoots from the root, which grow up into stems in time.

And how many things the branches are useful for? What would green peas and scarlet runners do without them? Others, again, are split in half and made into hoops, to be put round casks. A very pretty winter sight is the hoop-shaving: the copsewood all cut down; the great piles of white chips; the tall heap of hoops, placed regularly one over the other, so as to look like a barrel already; the long white bundles of rods, for

crates, set up on end, leaning against each other; and the little hut made of sticks and covered with chips, with sometimes a fire, with the smoke curling up, between the great old trees that still are left standing, though all the brushwood is down.

Then, too, the hazel-sticks make withes for binding, and are woven into hurdles for sheep; yes, and the first Christian flock in England were enclosed within hazel walls. It was of wattled hurdles that the first Church was made that was raised at Glastonbury, and it was long before our forefathers were able to form these holy buildings of more solid materials.

There are no hazel leaves to look at now, they are all folded up in the little hard, brown buds, and will not come out till May. Then, perhaps, you may remember to observe the serrated or saw-like edge of the leaf, and the numbers of little branches at the back, like a net-work, to serve as channels for the sap.

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### CHAPTER III.

#### APRIL FLOWERS.

##### ANEMONE AND RANUNCULUS.

AN April nosegay! It is much easier to gather one than a March nosegay; indeed, there are so many flowers now, that I can only choose out a few to talk about, as it would take too long to dwell upon them all.

The Easter flower is commonly called the Pasque flower, from the word Paschal. It is very pretty, deep purple, and with yellow stamens; but it is not very



common. I will go on to another flower of the same genus, the wood-anemone.

Anemone means windflower, and this I believe is the English name often given to this very pretty ornament of our woods, which some village children call smell-foxes. It is rather difficult to get at the root of the wood-anemone, as it is deep in the earth, and creeping, putting down clusters of fibres into the ground, and shooting up stems at short distances apart. Each stem has a sort of joint about half-way up, whence spring three leaf stalks, each stalk bears three leaves, and these leaves are again notched deeply into three divisions, and altogether they spread out most gracefully below the slender stem which bears the modest blossom, bending down its head and folding its wings in wet weather or at night, and opening them again to rejoice in the delicious spring sunshine.

The six petals are usually of a delicate pearly white; but sometimes, especially later in the season, they have a tinge of lilac, and I have now and then seen one quite purple. Within are quite a crowd of stamens with yellow anthers, too many to count, and in the middle what you might suppose to be a single great pistil, without style or stigma, but in reality it is a multitude of very small ones joined together, which will all become separate seeds in the course of the summer. How delicate the flower is! it is in vain to try to gather it for a nosegay, for it is sure to droop its pretty head and fade before it can be brought home, and we must be content to leave them in their bed of fresh green moss, and brown, crackling, last year's leaves at the foot of the tree, studding over the coppice like so many white stars.

I think that the wood-anemone may put us in mind

of some quiet, shy, modest girl, who makes all sunny and happy round her in her own safe, shaded home; while, perhaps, she has gayer and brighter sisters or cousins who can do their work as well in less sheltered scenes, and wear their company-ropes as modestly as she her humbler dress.

The anemone has such sisters—pretty Miss Hepatica Anemone, in her blue or pink robe, with her large, handsome three-cleft, dark-green parasol, is one of them; but she is not less quiet and retiring than her woodland sister, for she, too, hangs down her head, and hides under her leaves at night; and, somehow, she always prospers more in a cottage garden than in grander places, perhaps remembering that her native home is on the Swiss Mountains, and in the islands of the Baltic, where she shoots up through the snow. She is the first spring flower of the Danes and Swedes.

There is one of the family, however, who is quite at home in any garden, however grand—Mr. Poppy Anemone, her large, handsome brother, with his multitude of black stamens, and great black lump of pistils, the styles of which grow so thick together that they seem like hair. He has an endless variety of beautiful dresses: sometimes he appears in rich scarlet, sometimes in crimson or purple, and sometimes in quite a ladylike robe of white, trimmed with purple or pink. He is a great friend of the gardeners, who think they can get him to do anything to please them, and persuade him to alter his shape, wear all manner of flounces and furbelows, and disguise himself in such strange fashion that his best friends would hardly know him again. Sometimes, indeed, he wastes all his substance in thus doubling the folds of his robes, but if not, after about a fortnight, he takes off all his beautiful red or purple garments, and rolls himself up in his plain working dress,

very like a grey duffle cloak. By-and-bye, the grey coat seems to come unravelled, just as if you were to undo a knitted glove, and it will prove to be formed of a multitude of little yellow seeds, each with its own white wing of cotton, with which, if left to itself, it would fly away to seek a home; but the gardeners are on the watch for them and catch them, that they may take good care of their feeding and education, so that they may grow up as fine, or finer, gentlemen than their father.

I have read a description in a book of travels in the Holy Land, of the country near the sea of Galilee. The ground, early in the spring, is covered with a thick, close carpet of crimson anemones, above which are a number of half-withered stems of grass. Sometimes, through a narrow opening in the mountains, there comes a sudden gust of wind, waving aside for a moment all the grass in the line of its course, and showing the crimson flowers beneath, so that it seems like a mysterious river of blood, suddenly appearing for one instant, and as quickly passing away.

Several other flowers are in blossom now, belonging to the same many-stamened race (called by botanists *Polyandria*\*) as the anemone. First there is the ranunculus tribe, and you will wonder to hear that these are no other than your old golden friends, the buttercups, kingcups, or crowfoot, whichever you may usually call them. There they are with their five, glossy, yellow petals, their numerous stamens, and their lump of little, round, horn-shaped pistils. They have also five small green leaves growing under the petals, and this part of the flower is called the calyx or cup. There are many different kinds—the creeping crowfoot, which is such an enemy to the farmer in grass fields,

*Polys*, many; *andria*, stamens.

for though it used to be a saying that buttercups made the butter yellow, this is quite a mistake, for you may see that cattle always leave the stems when they have eaten the grass all round; and the truth is, that all plants of the tribe Polyandria, that is, with many stamens growing out of the receptacle, are poisonous. Then there is the corn-crowfoot, with its very curious-toothed and jagged seed-vessels, and the white water-crowfoot, which has large, three-cleft leaves to float on the top of the water, and serve to bear it up there, and also thick clusters of fibrous, mossy leaves, to keep under water and suck up moisture with. It varies remarkably in size, for in a deep running stream, or large pond, it is a handsome flower, while in a little puddle or gutter it is so very small, that the first time I met with it I could scarcely believe it to be the same flower. We must not forget the earliest of all buttercups, sometimes called pilewort, and sometimes small celandine, the structure of which is different from the others, in order to suit its early blossoming. It has ten instead of five petals, and three divisions in the calyx, and the reason of this difference is believed to be that it may be better able to close over and protect its stamens and pistils in case of early frost. I have a great kindness for the pilewort; for its sunny, golden face, coming to greet us so early, and the pretty brown shading outside; nor are its shining, heart-shaped leaves devoid of beauty.

Garden ranunculuses are many; Bachelor's Buttons, also called Fair-Maids-of-France, are a double sort. The French call them Esperance, or hope; and when St. Louis was a captive among the Mahometans in Egypt, and could write no letter to console his wife, he sent her a root of this flower. Its name told her to hope on

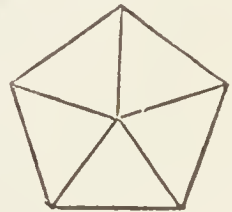
through her hard trial. The great scarlet globe ranunculus has its proper home in Syria. Another April flower of the same class, and very like a great crowfoot, is the marsh marigold; indeed, the only differences between it and the ranunculi are, that it has no calyx, and its pistils are more separated. It has its name from having been used to dress the churches on the feast of the Annunciation of the Blessed Virgin Mary, from whose old English title of Our Lady, many other flowers take their names.

## CHAPTER IV.

### MAY FLOWERS.

#### PRIMROSES AND VIOLETS.

Do you know what a pentagon is? Probably not, so here is one to show you. It is a mathematical figure, with five sides, and five angles all exactly equal, and all at the same distance from the centre, and very troublesome it is to draw one.



But what has it to do with flowers? It relates to them thus—that it shows the beautiful regularity and design which is perceptible through all the works of the great Creator.

Take a primrose, or a periwinkle, and compare it with the pentagon. Five gathered into one, or one divided into five; that, as you will soon perceive, is what may be called the principle upon which these, and many other of our prettiest flowers are formed.

First, the primrose has a calyx all in one, a deep,

close, hairy, green cup, with five divisions, and five points. This incloses a corolla,\* also all in one, consisting of a single petal, which might be compared to a funnel, as it has a long narrow pipe or throat, fitting into the calyx below, and above, spreading out into the five divisions, which, at first sight, one would almost take for separate petals. What an exquisite colour is theirs, such as can only be called primrose-colour, for it is so delicate that it is like no other yellow; and what a beautiful little mark of deeper yellow there is at the lower part of each, so as to make another little pentagon round the throat, corresponding with the cleft in the middle of each division of the corolla! How wonderful it is that it should be so perfectly regular, without being stiff or formal!

The end of the throat serves as a nectary; there is a sweet drop of juice at the bottom, as the little tiny black flies that creep in well know, and so do the sparrows, though I am not sure whether it is for the sake of the flies or of the honey that they are so apt to pick off the heads of the primroses, and leave the path strewn with them.

The more important parts of the flower are within the throat. The five stamens, which have very short filaments, raise their anthers like a crown, just within, and in the midst is the pistil, with a round green germ, a tall slender style, and a stigma just like a pin's head.

The stalks are of a very pretty pale pink colour, and covered with down; the leaves all grow directly from the root, without leaf-stalks. They have one principal large rib, like a back-bone, down the middle, and a number of branches spreading on each side; and these

\* Corolla, another name for the petals or coloured part of the flower.

again are connected with each other by lesser veins, which give the leaf a very curious crumpled appearance. Nothing is prettier than a fresh, bright bunch of primroses, the graceful bending stems appearing to repose upon the green leaves; and no plant chooses prettier places for growing; on the side of a mossy bank, or niched into the rugged roots of some old tree. There sits the sweet pale primrose, seeming almost to smile out of its quiet retreat, and giving forth a delicious mild fragrance, that seems just suitable to its soft, pure, delicate flower.

Prime rose means early rose, and in other languages its name has the same meaning. The French call it the "prime vère," first of the spring, and its Latin name is *Primula*, which also means the first.

*Primula* is, in fact, the family name of the primrose, and its numerous relations, the first English one of which is the oxlip. The oxlip's Latin name is *Primula Elatior*, one which I think suits it very well, as it seems like a conceited elated primrose, which had managed to perch itself up upon a second set of stalks, and had thereby grown hard and formal, without the delicate bending grace of the primrose; and it is curious to see how like, yet how much less pretty it is, than its quiet retiring sister. Indeed, botanists are not quite agreed whether the oxlip is really an aspiring variety of the primrose, or a distinct species, that is to say, sort of flower.

The cowslip, which has a second set of stems by nature, is a much more modest flower; it muffles up its throat closely in its long large calyx, and hangs down its head so as to form one of the bells, which, according to a pretty German fancy, serve to ring in the spring.

"In the cowslip's bell I lie,"

says the fairy's song, and no fairy could look for a better-lined palace, or a more sweetly-perfumed one. The corolla is like soft yellow velvet, and in each division there is a beautiful red spot, as if to set off the rest. The stamens and pistil scarcely vary from those of the primrose.

Cowslips can hardly be thought of without many a sunny remembrance of the broad green meadows where they may be gathered by handfuls, and the borders of coppices, where, having a richer soil, they grow so much larger. Oh! the pleasure of finding a noble, great cowslip-plant, with four or five stems, and perhaps one of them with as many as seventeen bells! Then there is sure to be an object in gathering cowslips. Perhaps it is for a garland, perhaps for cowslip tea, though I suspect the chief niceness in that is, that it is an excuse for having the pleasure of making a mess, perhaps for cowslip wine, or, perhaps, best of all, for a cowslip ball.

Oh! the deliciously sweet, soft thing! Let southern children keep their citrons, while we can have our cowslip balls, as large, as yellow, as fragrant, much softer, and giving far more pleasure, both in making and the using. What can compare with the delights of a cowslip ball? And yet it may be a trial of temper too, as perhaps you may have found, when some little one may have nipped off her stalks too short, or worse still, let go the string, so as to make all the cowslips fall down. If you do not keep your temper in such a case, even a cowslip ball may bring a painful remembrance with it, but I will hope better things of you, that so your balls may have as sweet an odour in remembrance, as during their short life.

Neither primroses, cowslips, nor oxlips will grow in



all the counties of England; and there is a fourth rare sort, of a purple colour, called the bird's-eye *Primula*, which only grows in the north.

Now we mention purple primroses, the common regular primrose may be made to turn to an unwholesome-looking, pale purple, by being planted in richer soil; the seeds of these empurpled primroses, will grow up of a deeper richer colour, sometimes purple, sometimes bright red, preserving the little yellow pentagon round the throat. Again, they may be doubled, and there are very pretty lilac double primroses, white ones too, and others which look as if they were cut out of crimson velvet, with little yellow spots.

The cowslip will turn scarlet on being cultivated; and by giving the pollen of the coloured primroses to the pistil of the cowslip, other varieties have been produced. That odd flower, like an oxlip with a frill on, is one, and another is that curious dweller in cottage-gardens, called Jack-in-a-box, his box being no other than his calyx, very much enlarged, but a few traces of its origin still remaining in the green marks on the edges.

The polyanthus is another variety of the cowslip, and that to which most attention has been paid. Polyanthus fanciers have shows of them, and are very particular that the dark spots on the corolla should be quite regular, and that there should not be what they call a pin-eye, that is, that the pin-like head of the pistil should not appear above the throat. Other people may be quite contented with the bright yellow and brown polyanthus, or spring flower, as it is called, without caring for these fancied beauties.

There are many foreign sorts of *Primula*. They grow in great beauty on the Alps, on the borders of

the snow; and many sorts have been brought to England. Auriculas, which name means little ears, have very curious powdery centres, and are of numerous colours—green, yellow, or purple.

The last to be mentioned is one which town children are likely to know, though they may never have seen a real English primrose, namely, the pretty purple Chinese primrose, which is grown in pots, and often to be seen at windows, turning its graceful flowers towards the light. It is exactly like the wild primrose in shape, though the colour varies from deep lilac to pure white, and the leaves are of very different shape. These early spring flowers almost all have leaves springing from the root, instead of the stem, perhaps that they may grow up in shorter time.

Another of the pentagon flowers is the periwinkle, the most regular perhaps of them all. The throat of this pretty flower is furnished with a soft white down, and the pistil in the middle is one of the most exquisitely-formed things that can be seen anywhere. Look at the green germ in five divisions, the taper little brown style, and the wonderfully beautiful stigma, like a white downy flower within a flower, or, perhaps, more like a very small model of a round brush. And the down is very useful in collecting the pollen, and conducting it to the germ.

If you have a periwinkle copse near you, pray go to it, and admire the bright blue eyes of the flowers peeping out among the long wreaths of leaves. The stems throw themselves out to a great length, and take root in the earth again, so as to make a network, in which you might chance to entangle your foot and get a fall. Pull up one of these, and you will

see the little white root it is throwing out to lay hold of the ground with.

These long wreaths seldom blossom, unless sometimes they do so in despair, because they cannot find the way to root themselves in the earth. The main root puts up little straight shoots which bear the buds and blossoms in the early spring, and when their flowering-time is over, stretch themselves out into wreaths. The leaves grow opposite to each other in pairs, and owing to their thicker and more substantial structure, retain so much sap, that they remain on all the winter, and the flower is to be found in blossom nearly through the whole year, though its full glory is in April and May. At the end of each long creeping shoot, there grow two pair of leaves just opposite to each other, and setting out so as to form a pretty green cross.

One of the prettiest May garlands I ever saw was ornamented with long strings of periwinkles, threaded alternately with cowslips, hanging in festoons all round it. In Italy, the blue eyes of the periwinkle do not seem to the people to have the same joyous look as they have here. They call it the flower of death, because it is used to put round the heads of little children who die young, when they are carried to their graves. They are not put into coffins, but are dressed in white frocks, a cross is put between their hands upon their breast, and with a wreath of the blue flowers round their hair, they are carried to church, and there lie looking like wax, till the Psalms and prayers are read over them, and they are laid in their resting-places. I suppose the periwinkle is chosen, because it is so frail and fading a flower.

If you have a river near you, with marshes round

it, perhaps you may be able to find a beautiful pentagon flower, the bog-bean, more elegantly, though less correctly, called the fringed lily. Less correctly, I say, because all true lilies have six stamens, and six petals, and I hope the children who read these chapters may learn a little more about flowers than to call every thing a lily, even to a white convolvulus, or still worse, a cowslip.

The delicate pink and white petals of the bog-bean, are crested with curious white curling fringes, from the midst of which peep out the five black anthers at regular distances, like the angles of a pentagon. Did you ever see a more elegant flower? I wish its delicate fringes would not shrivel and turn brown so very soon after it is gathered—but so it is—pure and delicate things cannot bear to be rudely touched and examined.

Here, too, is comfrey, with its prickly leaves, and bells of all shades from purple to white. Ah! and how could we pass by the little bright blue turquoise of a flower, that seems to call out, “Forget me not!” Do you know the story of its name? How a lady begged her lover to gather it for her, and while reaching it, he fell into the water, and was drowned, calling out as the flower floated near her, “Forget me not!”

Its proper learned name is mouse-ear-scorpion grass, because of its pricking, clinging leaves and stems, and this is, too, the name of the smaller sort in the lanes and woods, forget-me-not being only the appellation of the large river kind.

When Henry of Lancaster, afterwards King Henry IV., was sent into exile, he gave his friends in England the forget-me-not flower, formed of jewels, and with the two letters SS., which stand for the French words *Se Souvenir*, meaning “remember,” so that this plant must

have had its name long ago. Some people think it good for the whooping-cough.

This has been a long chapter, but I should be showing no due honour to the sweet violet, and the painted heart's-ease, if I passed them over. They are sisters, though you would scarcely have guessed it, the name of both is *Viola*, and they may be reckoned as pentagon flowers, since they have five calyx leaves, five petals, and five stamens. The two upper petals stand upright, the two next are rather smaller, and opposite to each other, the lower one has in front a large full lip, and behind, a curious sort of heel or spur which is fastened to the calyx, holds the ends of the other petals, and serves as the nectary, where resides the honey which causes the sweet smell.

The stamens all meet in a point around the little round-headed pistil, and they are beautifully protected by the crests which grow on the inner side of the two middle petals. These crests are larger and more remarkable in the dog-violet than in any other species, and, indeed, I think the poor dog-violet is rather unjustly despised. Look at its grey flowers, with their black streaks, and bright eyes, perched in their beds of moss, and so abundant, and so varying in tint, that if you were to gather only one of each variety as you passed through but one coppice, you would soon have a very handsome nosegay.

Every one knows and cares for the sweet violet, blue, white, and of a certain odd red variety, and the only doubt is, whether people think the blue or the white the sweetest. They are of the same species, only the colour varies according to the soil in which they grow, the white liking clay, and the blue or real violet-colour, preferring chalk, so that I have sometimes been able to

tell which way the school-girls have been walking, by the nosegays they have brought me.

Next comes the larger, handsomer *Viola*, though, after all, the wild heart's-ease of the south of England is not much larger than the dog-violet, when you find its pale cream-coloured flower in the long grass of a fallow-field. Even then it has some little dark streaks near the centre, and now and then a purplish stain on its two upper petals, and in the north it grows much larger, has the purple and yellow much brighter, and is far more like our garden flower.

Both those wild varieties have long narrow leaves, with curiously cut and carved wings growing on each side of them, and their seed-vessel is a pretty little box divided into three.

The garden heart's-ease is produced partly from these, and partly from one which grows wild on the Altai Mountains, in Asia. The one I hold in my hand is quite a common sort, with no fine name, but only listen to its description. The upper petals, large and rounded, are of a splendid deep velvety purple, the lower pair are exactly alike, the ground pale cream-colour, the outer part marked with a large purple spot, the inner part with a still darker cluster of purple dashes, spreading out on either side. The lowest petal is likewise cream-colour, but with a large yellow mark in the centre, bordered with purple lines, and immediately below it another purple spot. Can anything be more elaborately marked?

What empress in all her splendour ever found purple to compare with the richness of a heart's-ease? The sort which gardeners call the Black Prince is very large, and entirely of this deepest purple, except a little yellow near the eye, and a glorious flower it is.

There are others all yellow, and some with a narrow blue line all round the edge, but for the most part they are of purple and yellow mixed, and sometimes put us in mind of a cat's face, the eyes, whiskers, and ears being all clearly marked; sometimes, too, of a man, with a purple cap on his head, and a beard on his chin.

It is probably to the very smiling face of this purple-capped gentleman, that the flower owes its name of heart's-ease. Village children generally call it love-anidles, which unmeaning word they have made out of its old English name of love-in-idleness. It is also called pansey, from the French *pensée*, a thought, and sometimes by the very funny name of three-faces-under-one-hood.

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## CHAPTER V.

### JUNE FLOWERS.

#### THE APPLE AND THE ROSE.

JUNE is come, and the rugged, crooked thorns, which all the winter looked like worn, bent, hoary old men, are now come out like fair young maidens, in robes of green and veils of white; and as then the old gentlemen reminded us of summer by wearing here and there a bunch of green mistletoe, so now the young ladies remind us of winter by wearing their white like snow upon the branches. Very like snow indeed, as you will find if you go and stand under the tree, for the wind brings down whole showers of the petals on the grass below.

What is the inside of the flower like? The structure may be seen enlarged in the apple-blossom, or the wild rose, and it will be easier to understand if we look at them. Here is a wild crab, that will not be too crabbed to spare us a branch of pink and white flowers. What a multitude of yellow stamens! But I thought you said, when you told us about the buttercup, that all the many-stamened flowers, which you called by a hard name beginning with *poly*, were poisonous, and how can that be if the apple is one of them?

Well, you are right, I did say that all the polyandria, or many-stamened class, were poisonous, but look here. Gather a buttercup from under your feet, or look in the next field for a scarlet poppy, I dare say there are more there than the farmer wishes, in spite of their gay red coats.

Now pull off the calyx of the crowfoot. It does not make much difference to the flower, and none at all to the stamens. As to the poppy, it only used its calyx for a night-cap, when it was in bud, and ungratefully split it in two, and threw it away, as soon as it opened to daylight. You may see some in the act of performing this operation, the calyx already parted from the stem, and the scarlet petals crumpled up within it.

But how shall we pull off the calyx of the rose or apple blossom? It will not come without pulling the whole flower to pieces, nay, it even seems a part of this great solid green lump on which the whole is perched.

This is the difference, knowing which, you could tell what plants might safely be eaten if you were cast on a desert island, with no monkey to taste for you. All the plants which have stamens growing out of the calyx are harmless, all those which can spare their calyx without injury to the stamens are hurtful.



Besides, how different the seed-vessel is. The poppy's great pistil is like an urn, and when the seed is ripe, the upper part rises up on little supports all round, so as to let out the seed, and the cover is beautifully ornamented.

But what is the seed-vessel of the apple-tree? Who can tell? Yet in autumn you have a great liking for that same seed-vessel, which now you cannot even recollect. Must I describe it? The seeds are ten in number, in pairs, within five cells formed of two valves, all enclosed within a globe, fleshy, covered with a green rind, with a slight tinge of red.

Ah! ha! The apple itself! Yes to be sure, and the pips are the seeds, and the core the valves forming the cells. There is a discovery for you, which I dare say you will remember when you screw up your eyes, next autumn, with eating sharp apples, and find a hard piece of core in your mouth. Perhaps then you will look for the calyx, and you will find it risen in the world, mounted up on the top of the apple, forming what people call the eye, very much shrivelled and very small.

As to the young apple, it is no other than the large round germ beneath the flower, from which the calyx seems to grow. It is in fact five germs grown together, each contributing two pips, and a fifth part of the apple and their five styles and stigmas are to be seen above, in the midst of their rich nest of yellow stamens, and the outer walls of beautiful blushing pink and white, which are so lightly fastened on that they are soon blown away.

How great is the kindness which has dressed our useful friend in such robes as these! Nor is the apple-tree less beautiful in his autumn garb, gnarled and

crooked though he be. Who would wish to see anything much prettier than the red, yellow, and green apples that dot his branches all over? Some sorts in shining smooth crimson, some red shading into green, some red and yellow, some so pure and fair a green and pink that it reminds one of a delicate cheek; some again little crumpled things in russet brown, and green or old worn-out yellow. And as apple-eaters soon learn, they are an excellent lesson not to trust too much to the outside.

In counties where cider is made, the glory of the apple-tree descends in time, and huge piles of golden red and yellow are heaped up on the grass at the foot of the trees. Sometimes these piles have beautiful visitors, the great Red Admiral butterflies, with their brown velvet wings, edged with scarlet, and brightened with white, sometimes come in great numbers to flutter over them. I have counted as many as sixty of these beautiful creatures at one heap, some flying, others at rest, slowly opening and closing their wings to enjoy the heat of the sun.

The pear is almost exactly like the apple in the structure of both flower and fruit. In the perry-making counties, the trees stand up alone in the fields, and raise their white garlands after a glorious manner against the blue summer sky.

The cherry, the apricot, peach, and nectarine, all are of the same family. None of these, as you well know, if sprung from seed, will produce good fruit, unless they are grafted with a branch from a better tree, which is set into their stem, plastered over with clay, and in time is joined on so as to make one with them, so that being nourished with their sap, it grows, and brings fruit like its own parent tree. Even the seed of a good

apple would, if ungrafted, produce only sour worthless crabs.

Is not this like ourselves, born wild and worthless, but with grace planted in our hearts at baptism, so as to enable us to bring forth good, not "wild fruit?" and should not the grafting of a tree put us in mind to pray that God will "graft in our hearts the love of His name, increase us in true religion, and nourish us with all goodness?"

The laurel, and the Portugal laurel, with their pretty spikes of white blossoms and evergreen leaves, are brethren of the apple, though I would not advise you to eat their purple berries, as though not actually poisonous, they are not very wholesome. Indeed, out of the seeds of all this tribe may be extracted the deadly poison called prussic acid, not that there is enough in any of them to do us the least harm, and it is this very small quantity that gives the pleasant flavour to peach kernels, laurel leaves, almonds, and even hazel nuts.

Now we have had our own fruit-trees, we must not forget the birds' fruit-trees, the store provided for those which gather not into barns. Yes, our heavenly Father feedeth them, for these white May blossoms, which delight our eyes in the spring, will, by-and-bye, be scarlet haws for their food, and the white blossom of the black thorn which came with the cold wind of spring, is turning already to a purple sloe, or wild plum.

Haws put us in mind of hips, and with them we come back to the wild rose, below the flower of which you may already see the beginning of what botany books are pleased to call the pitcher-shaped fruit, though I can see very little of such shape in it. At present it verifies the proverb, "little pitchers have long ears" (I hope you have not in the sense the proverb means) for it has

five most beautiful, long, graceful, fringed leaflets, which form the especial grace and beauty both of the rose and bud. There is a peculiarity about these leaflets which is prettily expressed in this riddle:—

“Of us five brothers at the same time born,  
Two, from our birthday, ever beards have worn;  
On other two, none ever have appeared,  
While the fifth brother wears but half a beard.”

This is a fine puzzle for most people, but if you cannot make it out with a rose calyx before your eyes, I think you must be rather dull.

Admire the five pretty cleft petals of the flower, and see how their tints vary, some so snowy white, some so deep and delicate a pink, and is there anywhere to be seen anything more graceful and lovely than those long bending wreaths, covered with the elegant leaves, each consisting of five serrated leaflets, two pair opposite, and one at the point? And the deep pink buds in their bowers, and the more fully opened blossoms, and even the bunch of stamens which has lost its petals, and doubled back its leaflets, how pretty they all are, and how well they ornament the hedge!

It may be that you can find the sweet briar or eglantine growing wild, with its pink flowers, and delicious leaves, and even some of the dog-roses have slightly fragrant leaves. There are no less than twenty-two sorts of roses growing wild in this island of ours, the difference between them being principally marked by the form of the fruit, of the leaf, and of the thorns. Scottish roses are more deeply coloured than English ones, and more briary.

Scottish roses bring us into the garden, and where shall we stop now? See the flame-coloured Austrian briar spread itself over the house and show its beau-

teous blossoms, yellow outside, and orange within. See the sweet little *Banksia* climb still higher, and fling its luxuriant wreaths even round the very chimneys; see the dark red China cluster round the cottage window, almost a sure token that content and cleanliness are within.

Yes, roses must be pardoned for being double, since their office is to be fragrant and beautiful, and while their relations have improved their fruit for our taste, they have improved their blossom for two of our other senses, till the rose is owned as the queen of flowers.

The honest old round cabbage rose, solid, and with a depth of healthy sweetness which invites you to plunge your nose far into the deep pink cup; the moss rose, with the calyx crusted over with thick mossy hairs, so as to form those surpassingly lovely buds; the snowy Provence rose; the dark velvety damask; these are the oldest, and the best loved, though there are multitudes of new choice ones grown in costly gardens.

The Provence rose was first grown by King René, Count of Provence, and father of our Queen Margaret of Anjou, so that it seems as if our red-rose queen ought to have changed colours with her enemies of the white-rose party. The red-and-white striped York-and-Lancaster rose, always puts us in mind of the ending of those bloody wars by the marriage of Henry VII. and the Princess Elizabeth.

Henry VIII. used as his badge the York-and-Lancaster rose, which, whenever we see it carved in the buildings of his time, always looks as square and broad-faced as the king himself. The white rose, long after, was worn by the Scottish Jacobites, as a token of the hereditary right of the Stuarts.

The damask rose is properly the rose of Damascus,

the most famous place in the world for roses, where the perfume called "attar of roses" is made. At Shiraz, in Persia, this scent is also distilled, and there you may literally sleep on a bed of roses, whole rooms being filled with the delicious petals. China is full of roses, and it is the amusement of the Chinese gardeners to dwarf their growth, so as to make them, flowers, leaves, stem and all, so small that you would call them doll's flowers, and think them fit to put into a baby-house.

The pink China rose, though not so pretty as its sisters, blows so early and so late that it is valuable. It is remarkable that all the northern roses have their styles well protected with down, while all the southern ones are bare, to suit their warmer climates. Though Asia is full of roses, it is surprising that not one has ever been found growing wild in America.

The beautiful fragrant and fruit-bearing tribe of plants of which I have been speaking, are those, however, which chiefly remind us of the curse of Adam, since they are also the thorn-bearers. "No rose without a thorn," has often been remembered by those who have scratched their fingers, or who have found pain where they expected pleasure. But as joy often comes out of grief, and happiness out of well-endured punishment, so even the chief of thorns, the bramble, the most despised of plants, has fruit to yield us, the juicy dewberry and shining blackberry. And very handsome is a bramble-bush in Autumn adorned with its fruit, the ripe so polished a black, the unripe so bright a red. Who does not like blackberry picking?

In the case of the bramble-blossom, if you venture to gather it you will find the numerous cluster of germs within the corolla. Each germ afterwards becomes a

single seed inclosed in dark purple fleshy pulp, and all sit together on the receptacle which rises up in the middle of them, like a finger under a thimble, or a head in a cap.

The raspberry is a brother of the blackberry, and is very like it, only the petals are hardly visible, and the fruit is more juicy and larger. In America, when a piece of ground is cleared by burning, the first thing that comes up after the fire, is always a crop of wild raspberries of delicious flavour.

What is here called the American raspberry is not, however, very good to eat, and is only grown in shrubberies for the sake of its large pink flowers, and handsome leaves, which are much more agreeable than those of the bramble, or raspberry bush, which have the hooked thorns all along their main stem.

Last of all, we must give a word to the humble strawberry blossom, with its white petals, and yellow stamens. It likewise has many germs, which become the little seeds on the outside of the fruit, the fruit itself being in reality the enlarged receptacle which has taken them up, off their feet, as it were, and raised them on high. The calyx, and sometimes even a stray petal, may be found below.

Hunting for wood-strawberries is pleasant work, and so is the stringing them all in a row on a long piece of grass, where they look like red-and-white beads, the more unripe the better, as they are not quite so soft. And eating them is very pleasant too on a hot summer's day. Certainly we have a great deal to thank this tribe for, and now we have dwelt upon it so long, perhaps you will feel gratitude enough to it to remember its long name, "Icosandria," or twenty stamens, and mind that you do not confound it with its venomous neighbour, polyandria.

## CHAPTER VI.

## JULY FLOWERS.

## BUTTERFLY FLOWERS.

Go into the kitchen-garden, and look at the rows of peas, and tell me what you see there.

I see a number of pea-plants climbing on their sticks ; there are peas upon them, some not quite filled out, and some eaten by the birds, and there are some white flowers still.

And what do you think those white flowers are most like? I see something in the air looking very much as if one of them had taken wing and flown away. Ah! it is a white butterfly! Well, peas-blossom and all its company are called Papilionaceous flowers, from *Papilio*, which in Latin means butterfly; but I am not sure that I would not rather call them boat-flowers, as you will see when we come to look into them.

These white peas-blossoms are rather too useful to be gathered, so perhaps we had better go to the flower-garden for their gayer, though less valuable sister, the sweet-pea, a Sicilian lady, who has only come to live in England within the last two hundred years.

She has but a weak, feeble, climbing stem, which must lay hold of something; and to give it more breadth, so that it may be firmer, it has a sort of long leaf growing on to it at each side, which is called a wing. It also has the power of putting out tendrils, or feelers, which twist about spirally, that is to say, like a corkscrew, till they find something to lay hold of, and then bind themselves on to it fast and firmly. Sometimes



two tendrils make a mistake, and get hold of each other, and then they coil about and get marvellously twisted.

The leaves are in pairs at the joints of the stem, the blossoms, for the most part, grow singly on very slender footstalks, and there is good reason for the slenderness of these stalks, as you will presently see.

Each bears a calyx of one leaf, ending in five points, and if we strip off this calyx carefully, we shall see that it contains five petals, each with a little foot to fasten it to the receptacle.

The first of these petals is this handsome, deep crimson one, which looks as if it had been folded in the middle. And if you look at the bud, you will see that so it really was, for this petal is doubled over the others like a curtain, before the blossom opens. Its name is the standard, because it stands up above the rest, and shows its colours so boldly; but it might also be called the sail, for it answers the purpose of one; the wind blows it round, so that it always keeps its back to the bad weather, and serves as a shield to the delicate parts within.

Two long, narrow, purple petals project in front of the standard, and bend towards each other, so as nearly to meet; these are the wings, folding together so as to guard the innermost part. Within them is the little boat itself, which is called the keel, and is greenish white. Is it not beautifully shaped, the sharp ridge along the bottom, with the little beak at the end for the prow? It is just such a boat as one might fancy the king of the fairies floating along in by moonlight, with his crimson velvet standard serving at once for his flag and his sail.

And perhaps the queen of the fairies might sail by

his side, in the pearly nautilus-like keel of the painted lady-pea, with the pink standard unfurled to the wind. However, while we are fancying all this, we are forgetting to see how our little boat is really manned, and how rich a freight it bears.

Open it gently, and look into its narrow little hold. Ah! here is a fine store of gold-dust bursting out upon our fingers; it is a rich burthen, indeed, that these ten merry men bear who are gathered so close round their taller, fatter captain, with the one feather in his cap.

Very closely are the ten filaments gathered, so closely indeed, that they are even united, so as to form a regular sheath round the long thick germ of the pistil. Nine of them are actually grown into one piece, but the tenth is, as you may see, in a somewhat advanced blossom, separate from the rest, so as to form a kind of seam; and the use of this is, that when the germ has received the golden pollen and begins to swell, this stamen may part from the rest, and open the sheath, so that the pistil may have full room to expand.

Could a more perfect contrivance be imagined, and are not the wonders of the peas-blossom greater than almost any others of which we have yet heard? The germ is, as you see, long and flat, and it is already nearly of the same shape as the pod of a pea; and as to its contents, you know them probably quite as well as I do.

All the papilionaceous flowers have legumes or pods for fruit, and we have many valuable friends among them. Scarlet runners, or French beans, are the nearest at hand, with their beautiful red flowers, which are so bright that they would surely be grown for show, even if they were of no use. The ripe seeds of the scarlet

runner are beautiful things, shining black, mottled with purple ; and I have sometimes seen a little child made very happy with a long string of them threaded. They are beautiful too when grown to their full size, but not yet ripe, when they are of a rich purple crimson within their green shell.

The fragrant bean-blossom has been long since over, but I dare say you can recollect its striped standard, and the fine black spots upon each of its wings ; and its broad sturdy fruit is now just in perfection for eating with its companion, bacon. Next year you must go and watch the bees gathering honey from the bean flowers. So well folded within the wings and standard is the keel, that the bee cannot get in by the front, but is obliged to pierce a little hole through all the different folds, with its long trunk, before it can reach the juice. Sometimes you may find every flower on a bean plant thus pierced by the clever little gatherers of honey.

The broad bean is so large that it gives a very good opportunity for seeing the commencement of the growth of plants. You know it has a thick skin over it, which when you pull it off, splits into two halves, only held together by a little green and white hard thing, which we call the eye.

When sown, the white part of the eye becomes the root, the green part the stem, and afterwards the rest of the plant, while the two large fleshy halves of the bean itself appear above ground as cotyledons or seed leaves, and gather nourishment till the young plant is able to put out its own leaves, when they fall off and die.

The earlier papilionaceous flowers are very beautiful ; there is the graceful, drooping laburnum in the shrubbery, of so pure and delicate a yellow, the pretty brown

pencilled mark on the standard ; but it does not exceed in beauty the two wild yellow butterfly flowers. The broom, raising its graceful spires of yellow blossoms on its dark-green stems, seems to drink in the sunshine of May, and reflect it back again in cheerfulness. It grows in great quantities, and to an immense size, all over the desolate moors of Brittany and Anjou, and it must have been while hunting there that Geoffrey, the father of our Henry II., used to gather it and wear it in his cap, so that its French name of Genet became part of the surname of our bold English kings. It is said that they desired that their name of Plantagenet, taken from so humble a plant, might put them in mind not to exalt themselves too highly.

And we need not despise the useful household lessons which are connected with this bright-faced plant and its plain old English name ; for the good housewife and her broom may do her duty, and be quite as valuable in her way as the Plantagenet king who took his name from the same bush ; and if the once green boughs do their office in keeping the house cheerful, and pure, and fresh, they well deserve to be honoured by being worn in the helmet of the crowned prince whose office it is to protect the safety and the purity of that humble home.

Our other yellow butterfly flower is the prickly gorse or furze, which wears its sweet-smelling golden mantle in the spring, in such splendour that many a wild heath becomes for a time a field of the cloth of gold, which would have put King Harry the Eighth's to shame, even though his courtiers wore their whole year's income on their backs. England may be proud of its gorse, for it grows in such beauty nowhere else ; and, indeed, it is said, that when Linnæus, the Swede, and

the greatest naturalist that ever lived, first came to England, and saw a common covered with furze, in full blossom, he was so overcome that he fell down on his knees in a rapture at the sight.

The small dwarf furze is still in blossom, and will continue till the frost; and there are, besides, all the beautiful tribe of vetches and vetchlings, the tiny crimson heath pea, the purple vetchling, making bowers in the hedge, the yellow vetchling on the chalky bank, the tiny little grey tare, and especially the small milkwort, pink, blue, or white, with lovely little flowers, of which the pink is perhaps the prettiest, as it generally shows a large white tuft. It has but eight stamens instead of ten, like a crest in its helmet. There is a larger sort in America which is called by the pretty name of May-wings.

The lupins, with their many-fingered spreading leaves and tall spikes of blossom, ornament the garden, and greenhouses generally contain the little dark lotus, said to be the only black flower in existence; but we have a much prettier lotus of our own—the birds'-foot trefoil—so called from its seed-pods spreading out from one centre like the claws of a bird. Pretty little dwarf thing! it grows on sunny banks, and raises its red buds and clusters of yellow flowers in the midst of soft green moss, fragrant purple thyme, and striped eye-bright, and is one of the brightest stitches in that unequalled embroidery of the cushions of banks, on which it is so pleasant to sit in the bright days of the latter end of summer. It is sometimes called Lady's-fingers, in honour of the Blessed Virgin. A large lotus grows in the Levant, and it was an old fancy that the lotus-eater forgot all care, and was no longer subject to sorrow or death. So the lotus stood for immortality,

and old painters sometimes put it into pictures of scenes after the Resurrection.

The last to be mentioned among these flowers is the clover, or trefoil, in all its many kinds. Its heads, whether of the large purple, the white, the little yellow, or the rich crimson, all consist of a multitude of small papilionaceous flowers. How gay and beautiful they are! how bright a clover-field looks in the sun, and how especially handsome is a great field of the new-fashioned scarlet clover, which people have not yet left off calling by the Latin name of *Trifolium Incarnatum*. It is curious to find in an old gardening-book of fifty years ago, that this scarlet clover had then been twice introduced as a garden flower, but had been lost again, whereas now it is to be seen everywhere, and in a few years will, no doubt, be wild in all our hedges. This, I have no doubt, was the case with the Lucerne, which was brought here from the place of that name in Switzerland, as well as with the bright red saint-foin, the name of which consists of two French words, signifying "holy hay."

The strawberry-headed trefoil has numerous short pods, that form a globe, and cause its name. The haresfoot trefoil has very long calyx teeth, that stand out beyond the pods in an oblong cluster, rather like the foot of a hare. But the subterraneous trefoil is the strangest of all, for after the blossom is over, it buries its pods while they form the seed, in fact, sows itself.

Trefoil means three leaves, and you may easily see why it is so called. There is a beautiful story which explains why the shamrock or trefoil is so honoured by the Irish, and its leaves worn by them on St. Patrick's day.

St. Patrick was a bishop, who lived about the year

450, and who preached the Gospel in Ireland. It is said that he found that the great difficulty in converting the Irish was, that they would not believe, because they could not understand, the great mystery of the Doctrine of the Holy Trinity in Unity. At last he gathered a shamrock or trefoil leaf from the ground, and holding it up to them, asked if they could explain to him how this could be but one leaf, and yet be three separate leaves, and if they could not understand that, and yet knew it to be true, how should they refuse to believe what was so much greater, because their minds could not reach so far as to understand it?

This argument convinced the Irish, and the three-fold leaf has ever since been highly valued by them; and we often see it employed as an emblem in architecture. The limbs of crosses are often made to end in trefoils; church windows are sometimes in the same form, and it is a shape frequently chosen for carved foliage.

So we see how in every plant God has set lessons of His Name and Nature for those who will look for them. I have read of a poor man in Brittany, who was told by a wicked infidel revolutionary soldier, "We will throw down your churches; you shall have nothing to remind you of your superstition," which was what these unhappy men called the Christian religion. "You cannot take away the stars," answered the Breton, meaning that while he had them, he must still be for ever reminded of Him who made the stars.

And so even with the smallest herb that grows; not only has their Maker created them so perfect and so lovely that we can hardly help recollecting how great, how kind, and how wise He is every time we look at them, but He has also set upon them His seal, so that we may trace out in them emblems of His Nature as

revealed to us, which come to us as sweet lessons and helps, and might serve to support our faith, even if our other aids were far away.

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## CHAPTER VII.

### AUGUST FLOWERS.

#### THE LAST BELLS OF SUMMER.

THE bright flush of summer is fast fading away, and though the heat is not gone, yet all the first gay bloom is past, and the time is come which is compared to middle life, when man's first hopes and early promises are fading, but when they should have begun to bring forth fruit, fruit which may not always ripen here, but will assuredly do so hereafter in the soil of which we are inheritors.

But if the spring buds, the early delights, and perhaps the friends, of youth and childhood, have passed away, yet neither the year, nor the life of man, is left to be lonely and cheerless. Many a new bright young friend, many a quiet pleasure unknown before, many a happy and peaceful duty arise ere yet the earlier ones are gone, and early autumn has her garland of sweet flowers, the bells which brighten the last hours of summer, and, as the Germans say, ring its knell.

Yes, the bells are ringing summer's knell everywhere. The real bell flowers, the *Campanulas*,\* began a month ago to unfold their delicate blue bells. Wherever we go, we meet them, all five-stamened, pentagonal, drooping flowers, of a particularly delicate texture. They have one pistil with a graceful three-

\* *Campanula*, a little bell.



cleft branched stigma, and a very hairy style. The little hairs are useful to brush the pollen out of the anthers, as the style passes through them in lengthening, and thus this fertilizing dust finds its way to the stigma. The seed-vessel is a curious five-cleft purse, which splits open in the middle of each division, instead of at the sides.

Peals of these Campanula bells are nodding on their tall stalks everywhere, the Canterbury bells in the garden, the nettle-leaved bell flower in the hedges of the south, and the tall pale blue giant bell flower in the north; the moor rings its ivy-leaved bells, so small and close to the ground; the chalk-pit has its rich, dark blue clustered bell flower; and the stubble, in some fortunate places, is ornamented with a Campanula so beautiful, that it has the name of Venus's looking-glass, since even the fabled goddess of beauty herself could not see anything so pretty as this in her own mirror; but surely if we could but hear them, the sweetest and softest tones of all must be rung out by the single bells of the dear little delicate harebell, nodding on its slim tender stalk, looking so frail that we should fancy no care could be too great to rear such an elegant thing. Yet it will bloom on through all the autumn, in the coldest and most exposed situations, brightening the waste with its modest beauty, and never leaving us till the first frost has come to nip it. So fond are the Scots of this pretty flower that decks their bleak mountains and moors, that it seems to them, wherever they see it, a symbol of home, and it has the name of "the blue bells of Scotland."

Other bells are ringing round it on the common, especially the heather bells, which I could fancy would make a sharp, quick, tinkling sound, just fit for a

fairy's dinner-bell; indeed, what with their stiff hard leaves, and dry chaffy corolla, you may almost ring them yourself.

The heaths have eight stamens, with purple anthers in two divisions opening like the prongs of a fork, and one pistil, the germ of which contains multitudinous little winged seeds, so small that they are not easily seen.

You will be surprised to hear that this small scrambling plant is a very good geographer, and has a particular dislike to Asia, though one would have thought it might be like the Russian empire, and not be particular whether it was all in one quarter of the world; but no, the heath is a steady European, and though it grows in quantities all over the western side of the Ural mountains, not one piece ever spreads to the eastern side, or is found in any part of the whole Asiatic continent. There are plenty of African and American heaths, however, and very beautiful they are, with splendid large red, yellow, or white bells, and dark thready stamens. However, England may be well contented with her own three sorts of heather, or more properly five sorts, but two of them will not come out of Cornwall—why, I cannot tell.

The three are, the large cross-leaved heath, with all its pale blush-coloured bells in one cluster; the purple heath, branching for ever, and scrambling all over the common; and the ling, spiring up in such graceful branching forms, sometimes tall slender spikes, sometimes round garlands, sometimes little lilac trees, all so indescribably lovely, that it is difficult to leave off gathering when once you begin.

These tiny heaths make more show in the world than much larger and handsomer flowers, putting us in

mind that the whole Church, and the whole nation, take their colour more from the multitude of the lowly and humble members, than from the great and noted. It is the purple heath that gives the rich tint to the distant landscape, giving mountains and moors far away a fine glowing hue, through the blue haze of distance. And they are very valuable for the common uses of life, as well as beautiful to look on. A bed of fresh heather is said to be most delicious from its elastic springiness; the dry woody stalks are bound up in bundles for burning, and a heath broom is a very useful article.

But now we will leave the heathy common, with its free air, and the delightful springiness beneath our feet, which seems as if we could walk there for ever without being tired, and look at one or two more eight-stamened flowers, which are in their glory now. There are the willow herbs, the tall French willow herb, with its curiously-cut petals, and red calyx, and spires of blossom, and the English willow herb, better known as "codlings and cream," which opens its fine red blossoms by the river side, the white stigma within divided into four, and opening like another little flower. There are three or four poor little pale willow herbs besides, which do not look as if they were of the same family as these fine handsome flowers, but, like them, have very beautiful seeds, each furnished with a very long graceful feather of white silk with which to fly away to seek their moist nursery.

The parts of willow herbs are all in fours; four petals, four divisions of the calyx, four seeds, twice four stamens; and so it is with the bright-coloured yet grave bell that is ringing in all gardens, almost in all houses, and taking its part in the last chimes of summer.

The fuchsia I mean, with its deep red calyx, and the fine violet petals rolled round the long stamens, one of the most richly coloured of flowers. It grows wild in Mexico, where its crimson flowers hang down from very large bushes, high up on the wild volcanic hills. The first that was ever brought to England was a present from a sailor to his old mother, who lived in some small street in London, and kept it in a flower-pot in her window. Much must the old woman have delighted in watching the unfolding of the long crimson drops into the drooping blossoms, so unlike all that she had ever seen before, and putting her in mind how her son had remembered her and thought of her in lands so far away over the broad sea. But she was not the only person who admired the flowers, though no one could have loved them so much ; a lady stopped, at the sight of what was so beautiful and uncommon, looked at the blossoms and heard their story. She went to a great gardener to try to find this new plant there, and described it to him, but he had not seen one, nor ever heard of such a flower. He asked the direction to the old woman, went to her, and offered half a guinea, one guinea, two guineas, for the beautiful plant, but still the mother would not part with it till he had promised her that the first young plant he could raise should be hers. He took it home, pulled off every blossom, cut it up into slips, and put them into a forcing-frame, where they quickly grew and flourished. And soon fuchsia-plants at two guineas a-piece were in the grandest drawing-rooms in London, but the most prized of all was that which came back to the old mother. She had her share of the profits too, and when the sailor-son came home from his next voyage, he found that his present had provided for the com-

fort of her old age, as well as cheered her in his absence.

This was a long time ago, and the fuchsia thus obtained is now called "the old-fashioned fuchsia," and not often found except in the gardens of old houses ; it is rather larger and more delicate than those we usually see, which are, for the most part, seedlings.

There are several large new sorts, but they have in general lost their grace while becoming larger, and their colours are not so good and deep as those of the smaller and hardier ones. I suppose it is an acknowledgment of the beauty of the fuchsia, that it is a very favourite shape for ornaments, such as brooches, pins, &c., which, however, only serve to show us how miserable and clumsy are man's best imitations of the wonderful works of God. How well I remember days when it was our delight to keep shops in the garden—grocers, dressmakers, jewellers, &c.—with flowers, leaves, and grass, to represent the goods. We all wanted to have fuchsias in our shops, because they were so pretty, and I think we used them very ill, for they were ear-rings at the jeweller's, and artificial flowers at the milliner's, and at last our little tailor decided, "that they were a very curious sort of trowsers."

In the south of England, the foxglove peals of bells have in general ceased to ring before the 1st of August. The foxglove, the special fairy flower, called in Ireland fairy-cap, and where the little elves are said to hide themselves, when a human foot approaches to disturb their evening dances, and I believe the English name is properly folks'-gloves, the fairy folks. Beautiful foxgloves! the purple bells hanging in profusion on their tall proud stalks, growing in whole

multitudes on the sunny dry bank, or lifting tall spires among the grey dark ruined walls! how fair and bright they are! and yet it is almost sad to greet them, for they first come to tell us of the decay of summer.

They are loved by little children too for the loud popping noise made by enclosing the air within them, and then cracking them, for which reason they are apt to call them poppies, though this is a silly name, and does not belong to them.

The foxglove is one of the largest of a numerous tribe of flowers, called Labiate or lipped, and therefore its parts should be examined closely. Its corolla is of one petal, with a narrow throat fastened into a five-cleft calyx, there is one pistil divided at the top, and a large round germ. The stamens are four, two long and two short, and it is this which is the chief distinction of the tribe.

Those of the foxglove are bent in the middle; the outside of the corolla is purple; the anthers are of a very pretty bright delicate yellow, spotted with dark brown; the throat of the flower is shaded with white, and speckled with dark red spots, sometimes bordered with white rings, with long downy hairs growing out of the spots; the pistil is deep purple; the calyx and leaves are of a soft light green, and altogether there are few English plants so handsome.

Another of the tribe is the snapdragon, with its odd red and yellow, or white and yellow mouth, within the close-shut lips of which may be seen the two long and two short stamens, and the pistil like a tongue, and plenty of honey, too, after which the bees creep into the little box, shut themselves in, and then come backwards out, all over yellow pollen. The great snapdragon grows on the old town or castle wall, which

once saw battles and sieges ; its relations are humbler, the small ones live in dry fields ; the tall yellow toad-flax, with its sulphur-coloured upper lip and orange-coloured lower one, and its long tail, abides in dry hedges ; the ivy-leaved lilac toad-flax clothes the bare rock, and the brown and yellow sort creeps in the fallow-field.

The beautiful blue skull-cap grows by the water-side, its seed-vessel is really like a skull, and that of the garden monkey-flower is not unlike a monkey's face. The musk, with its strong scent, is the smallest of this family of monkey-flowers, it is very necessary to say, or one might be in the case of the gentleman who sent to Brazil for all the sorts of monkey-flowers his friend could obtain, but unfortunately made the important blunder of leaving out the word flowers, and, in consequence, received a whole ship-load of chattering, grinning monkeys, from the American woods, with a message that there were a few scarce ones to follow by the next opportunity. Gardens possess, too, the tall, long, red penstemon, with five stamens indeed, but one only a mock one, for it never carries an anther.

All these have a large high seed-vessel, but there is a second division of the labiate flowers, which have only four naked brown seeds at the bottom of the calyx. To this tribe belong the herbs which have the strongest scent, the lavender and rosemary, basil and marjoram. The sage, which has but two stamens, branched however so as to carry four anthers, is one of this tribe, with all the other *Salvias*, less useful, but far handsomer, scarlet, blue, and crimson, and the wild clary of the woods. Nor must we forget thyme, sweet thyme, both wild and tame, beloved by bees, the delicious beds of which are so soft, and send forth such a fragrant smell

when trodden on; the basil thyme, too, in the fallow-field, deep blue, with a pretty white crescent on its lower lip. Almost all of this tribe have a strong scent, and are often very useful. There is the white and the red archangel or dead-nettle, so named from their nettle-shaped leaves, and with so sweet a drop of honey at the bottom of their throat. The purple prunella or self-heal, called by country children Lady's Slipper, and the creeping ground-ivy, all used to be very highly valued when doctors were few, and the chief mediciners of the villages were "cullers of simples," whose knowledge of herbs had been handed down by tradition without books from many ages past.

Many fatal mistakes these poor old people must have made, and very thankful we may be that all the benefits of good and superior care have come amongst us, more easily obtained by the poorest now, than then by the richest and greatest.

This is a long chapter, and so I shall leave you to find out more about labiate flowers, and summer bells, in the best way possible, by your own eyes and observation.

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## CHAPTER VIII.

### SEPTEMBER FLOWERS.

#### COMPOUND FLOWERS.

YOU have learnt by this time that there can be no perfect flower without stamens and pistils, and that no double flowers are ever found growing wild, excepting now and then by what people are pleased to call a freak of nature.

However, here is a puzzle for you: no one can doubt



that dandelions and thistles are wild, since no one ever takes the trouble to grow them ; and thistle down and dandelion clocks will not allow us to doubt that they both produce as much seed as, and more too, than any one wants or wishes. Moreover, where are the stamens and pistils of a daisy ?

I think you must be in a difficulty ; and now I will surprise you still more by telling you that the daisy and dandelion have in reality more stamens and pistils than any flower with which you have yet been made acquainted.

If you have a large kitchen-garden, and if the gardener ever lets his artichokes run to seed, you will there have the best opportunity of seeing the structure of flowers of this class ; since the parts are so large as to be easily examined without a magnifying-glass. I have a great admiration for an artichoke flower, with its crown of blue petals, and pale lilac styles, of such an exquisite light bright colour ; it rises up so nobly in the autumnal garden, and if gathered, and brought into the house, often puzzles people who would never think of seeing such a handsome thing come out of a kitchen-garden.

If you can get an artichoke blossom, look at it closely, and pull it to pieces, as well as its very strong, hard calyx will allow you, and you will find that it is, in fact, one great head, consisting of a multitude of small flowers, closely packed together on the same receptacle, within the same calyx. Each floret, or little flower, consists, you see, of one petal deeply cut. Within is one pistil, very long and slender ; the five stamens are much shorter and smaller, and their anthers are united round the style, just as in the violet and heart's-ease.

All these heads of small florets are called together

Compound Flowers; and there are a great many different species, many of which come into blossom late in the year, and are now ornamenting our gardens and fields.

The calyx of most of these is composed of small leaves, laid one over the other like tiles, or scales imbricated, as this is properly called. You may see this in the artichoke, though here each scale is very large, thick, and fleshy, at the place where it is set into the receptacle. So you see it is the bud of the artichoke blossom which is sent up to table; the "arti," as a little boy I knew used to call the eatable part, is the receptacle, and the choke consists of the young florets.

The Jerusalem artichoke is also a compound flower, though it is not related to the common artichoke, excepting that its root has a taste supposed to resemble that of its namesake. In both its names this vegetable seems to have made a great blunder, for it has really nothing to do with Jerusalem, and the word is only a corruption of the Italian *girar sole*, turn to the sun, it being really a species of sunflower.

Both sunflowers and Jerusalem artichokes were first found in Peru, where they were held in high esteem by the natives, who considered them sacred to the sun, and wore their blossoms in their hair at all their great festivals.

In sunflowers much of the structure of compound flowers may easily be seen, as the florets are all of a large size; all those in the centre, or as it is sometimes called, the disk, perfect and regular flowers, with five united stamens and one pistil; but the large yellow ones on the outside, which at first sight might have been taken as the only petals, have, in fact, one petal, grown to a great size, and no stamens at all. These

are called the strap-shaped florets, and serve the same purpose as the corolla in simple flowers, namely, to protect the more perfect and regular ones which produce the seed.

Each seed of the sunflower kind is of a dark-brown or grey, all firmly set within the calyx; and in the case of that glorious old-fashioned flower, the large sunflower, the great circular receptacle puts me in mind of a round shield. Turkeys and poultry greatly like the oily seeds of the large sunflower, and the whole plant is very handsome, standing up high in the garden of some cottage, or farm-house, with its great broad golden blossoms, as bright with their yellow rays as if they wished to grow into the likeness of the sun, at which they are always looking.

For solid as is the stalk of this flower, it always turns towards the sun through his whole course. At sunrise, the blossoms are each one of them turned to the east; by noon-day their bright faces are steadfastly turned to the south; the parting rays of the western sun still play upon the broad disk of the constant sunflower; and ere the morning light has dawned, it has set its face to watch for the eastern glow. It is one of the brightest, clearest lessons written in God's great book of nature; for is it not thus that the Christian, through the morning, noon-day, and even-tide of his life, earnestly looks up to the Sun of Righteousness in heaven, till he is transformed in His likeness, and when at length night comes upon him, is he not laid down to sleep, with his face towards the east, watching for the dawning of the brightest day?

The daisy, the bright day's eye, is a little sunflower in its own humble, quiet way, and when the sun is out of sight, it folds its pink-and-white strap-shaped florets

over its yellow eye, bends its head, and sleeps amid the dewy grass. All its perfect florets are not in blossom together; those at the edge come out first, and the centre ones not till the strap-shaped outer florets are often much the worse for wear. When you make a daisy-chain you thrust the needle and thread through the receptacle, or disk, and the centre florets. How very grand this sounds! You think, and so do I, that it is much pleasanter to make a capital long daisy-chain than to talk about it in such fine words. Daisy-chains are country children's strings of pearls, the pearls of the meadow, as we may call them, for the very same word, *Margarita*, signifies at once a daisy and a pearl; and if any little Margarets read this chapter, perhaps they will remember to have been sometimes called pearls, or sometime daisies.

St. Margaret of Cortona is always drawn with a daisy in her hand, or growing near her, and in honour of her, a daisy was the device of Margaret, St. Louis's queen, as well as of our own bold, high-spirited Queen Margaret of Anjou, who does not seem to have had a right to anything so meek and lowly. There is a beautiful book of hers in the British Museum, given to her by the great Lord Talbot, with the first page ornamented with a rich border of daisies. A double daisy is one in which the strap-shaped florets have been multiplied till they exclude the perfect ones in the disk; they are often very pretty, when they are of bright crimson or snowy white; and where is the child that is not proud of that funny thing, a hen-and-chicken daisy, in the border of a little garden bed.

The next flowers of which daisies remind us are the great bold-looking ox-eye daisies of the early spring, with their clear white and bright yellow. They are

not, however, real daisies, but with their yellow brother, the corn-ox-eye, are chrysanthemums, of the same genus as the red, white, and yellow double flowers which linger on in the garden till the first frost. The Chinese play fine tricks with their chrysanthemums, clipping and training them to grow in the shape of horses, deer, and sometimes even Pagodas.

Nor must we quite pass September without a kindly remembrance of the sober Michaelmas-daisy, with its grey border and smiling eye, coming to stay with us through the autumn as long as ever the frost will allow it.

And there, too, are the noble flowers called dahlias, which were first brought, small and single, from Mexico, where they were called *cocoxochitl*, and truly they have improved their name as much as their beauty since their arrival in England. A single dahlia is seldom seen, and it is not very handsome; the double ones are certainly very fine, dark velvety puce, rich crimson and scarlet, white and lilac, regularly and exquisitely marked, and each floret quilled and folded with perfect regularity. They are some of the flowers on which gardeners most pride themselves.

But we must come back to our own hedges and ditches, where we find the strong-scented camomile flower, so useful in medicine, the lilac flea-bane, the tall golden-rod, all autumn flowers; moreover, the rude rough rag-weed, yellow, bold, and staring, and with its jagged leaves, usually devoured by swarms of yellow and black caterpillars, their yellow parts of exactly the same hue as the flowers.

All these are of the same description as the daisy and sunflower, with a disk of perfect flowers, and a ray of strap-shaped florets. Such also is the groundsel,

though it has no ray, the very troublesome groundsel, regarded with kindness by none save the little gardeners who want a weed to pull up, or by those who have a caged canary to rejoice with twisting it into the bars of its cage. That inveterate groundsel, which will come up everywhere, is the strongest of all emblems of the ill weeds that have grown apace in the soil of our heart ever since that, as well as the ground, was made a soil to be cultivated with care and severe toil, before it will bring forth aught but what is worthless. The American groundsel is a pretty purple flower with a ray, and is much grown in gardens.

There is another odd-looking flower belonging to this order; the small brown cud-weed, with the white cottony leaves, which grows in the stubble fields in the autumn. This cud-weed has, however, some very pretty brothers; the everlasting flowers, the calyx of which, consisting of a number of small, stiff, chaffy leaves, is not liable to fade, but both the yellow and white kinds can be kept for a long time in some dry place as a winter nosegay. I have some on my mantel-piece which were given me by a little school girl more than two years ago. Sometimes we see them in wreaths in gardeners' shops, dyed of different colours, in red and blue. There is a large fine red sort too, and a large yellow one, the last of which we often see in gardens. These amaranths, or everlasting flowers, though stiff, and not very graceful in themselves, are considered as the emblems of the never-fading flowers beyond the grave; and in France and Germany it is the custom to lay garlands of them on the coffin, and often to hang fresh wreaths of them upon the graves of those who have passed into the other world.

Next we come to such flowers as, like the real arti-

choke, are composed entirely of equal and perfect florets. First of these is the thistle, the cursed thistle, as one sort is called, the plant which, together with the bramble, grows everywhere to remind man of his doom. And yet the thistle is a noble and beautiful flower, with its purple florets, its calyx of firm solid scales lapping over one another, and each ending in such a long, sharp, piercing dagger, besides the numerous lesser spines which bristle up at every point, like an army of spears around the soft rich purple cushion within. Every leaf too has its own spines; every joint of the stalk is well guarded, and it well deserves the motto which the Scots have given at once to it, and to their kingdom—"No one can provoke me with impunity."

The thistle, with its purple cap and coronet of spines, has long been the badge of Scotland; the reason why is not known, though it seems to me that long ago I read a story of a Dane at the head of an invading army, who stealing in secret, barefooted, to attack the Scottish camp in the night, suddenly trod upon a thistle, and by his cry of surprise and pain, put the Scots on their guard, so that the attempt at surprising them failed. But I have never been able to find the story again, and am sometimes inclined to believe I must have dreamt it. At any rate the gallant King James V. instituted the order of Knights of the Thistle, and this common way-side plant was the chosen device of the house of Stuart.

If you choose to venture your fingers in pulling a thistle to pieces, you will find the tiny purple florets with five stamens and one pistil each, and each little pistil has a long, narrow, silky white cotton wing fastened to its germ. As the flower fades, these cotton

wings grow larger ; they fill the calyx till it seems as if it was a white silk thistle instead of a purple one, then they puff out into a handsome soft head, and at last they take flight, and these full-spread white wings go floating hither and thither on the autumn wind till at last they become fixed, and grow and multiply, alas ! far too like bad habits, lightly caught and fast fixed, and too soon full of spines and thorns.

Luckily goldfinches eat a good many of these mischievous downy seeds, or I do not know what would become of us. I have seen the whole air so full of thistle down as to look as if it was snowing, for the sluggard cannot allow the thistle to grow in his own field without damaging that of his neighbour. The great milk thistle, with the green leaves variegated with white, is the prettiest of all ; there is also the dwarf stemless thistle, which looks beautiful on the chalk down, and its companion the brown one, equally small, and looking as if it was a dead flower.

The great hardworking dumbledores love to hum over the thistles, and rest on the purple tuft, which makes a royal cushion for those black velvet and orange coloured, burly, portly creatures.

If thistles are like bad habits, so too are the burdocks, which stick so fast and hold so tight, that it seems impossible to get rid of them, as each scale of the calyx has a little sharp-pointed hook at the end. I remember once a little village boy in his play stuck his jacket over with these burs to look like the long rows of buttons on a page's jacket ; I have always wondered how long he was getting them out again.

Dandelions are of the same kind, with perfect florets, and winged pistils, which make such beautiful globes, that children so love to blow away and call clocks,



fancying the number of puffs will give that of the hour. Or in our shops I have known them serve as mops. The curious milky juice which stains the fingers of those who make dandelion chains, is of use in medicine, and the root is sometimes ground up and mixed with coffee for people in weak health. The chains, formed by joining the two ends of the hollow stem, are very pretty things, and what pride to make them reach all round the garden! By the way, the name of the flower does not mean a conceited lion, as might have been supposed, it is only a corruption of the French name *dent de lion*, a lion's tooth, from the jagged edge of the petals. The dandelion has many likenesses among the sowthistles and the pretty brimstone-coloured hawk-weeds, one of which makes a still prettier round puffed head than the dandelion clock itself.

Though this chapter has been far too long, I must not leave off without giving one or two words to the last order of compound flowers, to which belong the lovely blue corn-flowers, and the hard sturdy knap-weed. These have their perfect florets in the middle, but their imperfect florets, instead of spreading out in rays, are really little flowers of exquisite form, only without the important parts.

The knap-weed is in full blossom now in all waste places; it has a beautiful imbricated calyx, fitting together with admirable closeness, like a suit of armour, each scale edged with a border of little brown hairs. It is a purple flower, with a tough stem, very hard to gather.

Last of all the deep blue corn-flower, with its pretty head among the wheat, and its diadem of imperfect flowers. In Germany the children of the villages sometimes wear wreaths of this beautiful flower as

crowns round their flaxen heads, when all the people of the place go according to the good old custom, to offer up their thanks in Church for their safely-gathered crops.

To conclude, there are three different classes of compound flowers ; first, those which, like the dandelion, have all their florets equal and perfect ; secondly, those which, like the daisy, have a ray of imperfect flowers, and a disk of perfect ones ; thirdly, those which, like the knap-weed, have no ray, but a border of imperfect flowers.

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## CHAPTER IX.

### OCTOBER PLANTS.

#### UNSEEN BLOSSOMS.

I WAS thinking what I could find to tell you about flowers, or rather about the vegetable world, in October, which to one half of the globe is the season of decay, and when the bright tints worn by the woods are only the beauty of decline, like the gay colouring of sunset. The trees do indeed wear “a sunshine of their own,” but it is like the crown of glory on the head of the aged man.

I was thinking, I say, what could be said about the vegetable world in October, when I recollected a story told of one of the most learned men who ever lived. He was sitting one day upon an open common, when he laid down his hand upon a piece of turf, and said that in that small space which he thus covered, there grew so many wonders that their study would occupy the

longest life of the greatest philosopher. So I do not think we need despair of finding something marvellous, even though the time of primroses and violets has gone by.

Pray what do you consider to be the colour of a brick wall? Red, to be sure; all red together. And a tiled roof? Why, that is red too, only darker. Or a stone wall? That is grey, or reddish, or white, according to the colour of the stone. What can make you ask us such foolish questions? And the bricks are all alike, I suppose? O yes, exactly, not a bit of difference between them.

Well, there is a row of houses, all built at the same time, all with one door, and two windows down stairs, and three up stairs, all with slated roofs and chimneys, exactly the same. But do they all look just alike? Let us see. Here is one with neat white muslin blind and white curtain peeping out, and the door set open with a bar up against it, and a scrambling baby in a pink frock, leaning out over, making its funny little noises at the people passing by. And the next? Here is a window with no comfortable curtains, but with great cracks, and dirty-looking bundles squeezed close up against it, as if the house was full of disorder, and at the open door you may see a child with tangled hair, and a frock of one washed-out colour, dragging a poor little baby ill-temperedly about. Or here is another, very trim indeed, with bright scarlet geraniums making a blind to the down-stairs windows, and wooden boxes of mignonette before the upper ones. The next looks blank and dull, and see, "To be let," is stuck up in the window. Here we have another, where the panes are very bright, and behind them there stand up oranges and curiously-cut pieces of parliament ginger-

bread; and in this one the upper window is open, but the curtains are drawn close, and there is a hush in the manner in which that young girl is lifting the latch of the door. There is sickness there, or perhaps it may be death. All that row of houses were alike when they were built, but are they alike now? How full of living souls are they, and all with their own joys, their own griefs, their own sins and struggles, all unknown to us, though they are our brethren and members of the same Body, but all known perfectly and thoroughly to the Father of us all!

And if we know nothing of what is so like and so near to ourselves, how should we know anything of the hidden things of nature and of providence? They seem put there to show us how dim our eyes are, and remind us that a time may come when we shall see more clearly.

Now for the brick wall, the red wall, only it must not be a spick-and-span new wall, any more than the houses are quite new. The houses must get their inhabitants, and so must the bricks.

Well, look close at the bricks, and say whether they are all alike, or whether they are red. To begin. First here is a cloudy sort of splotch of grey, shaded off into edges of silvery white, which looks quite pure and bright against the little dark-brown bristles that rise in front of it; then comes another cloud, but this is yellow instead of white, and what a funny shape it is, something like China and Hindostan in the map, with two or three little yellow islands round it.

The brick, its neighbour, is gayer still, for the yellow is in broader streaks, and the white rises in curious little shields or crests. Besides, there is a crack in the brick, upon which there rises a small

round tuft of exquisite dark soft green, like a cushion. And see here, how the yellow, brown, and white, are all blended in one pattern, like the veining of marble. No one can say that one brick is exactly like another when they come to look into them, any more than that there is no difference between houses.

This strange painting on bricks and stones is one of the least understood and most curious things in creation; for when I have told you that these grey and yellow clouds are lichens, you know nothing more than their name, and I have very little more to tell you. Great microscopes, and minds which are microscopes in comparison with ours, have been set to work on these little things, and can only make out enough to be sure that there are still greater wonders yet to be discovered. They have not, indeed, leaves, stem, and blossom, like the larger vegetables, but it is not less true that they are living, growing, seed-producing plants.

As to seeing the seed, or even the parts that contain it, that is quite impossible without a very powerful magnifier. The parts containing it are very minute purses, usually ranged under the raised edge of the yellow crust, or under the white shield. Each bag is full of little cells, and each cell is filled with seeds so small that not only the eye cannot see them, but the touch cannot discover them, and yet they have life within them, life which wants nothing but moisture to make it grow, and lay the foundation for further and better developed life.

Floating about in the air, these imperceptible seeds settle on stone, on wood, on the bark of trees, wherever they can find a cranny, a cranny that is large enough

for them, not what our eye or even our touch would call a cranny.

What they come to, a good deal depends upon the substance upon which they grow, for the bounds between the different species have not been clearly made out. These grey-and-white ones are called liverworts; there are, besides, the grey crusty ones, which give the hoary appearance to the bark of the old oak tree, and the long grey branching one that hangs down stiff and crackling from the boughs, a sort of winter foliage; its purses are in little globes at the end of each branch, and it is properly called lungwort. It is the liverwort and the lungwort that are so useful to the little birds in building their nests; the neat goldfinch and chaffinch work them in with moss, and hair, and gossamer cobwebs, like little felt-makers, and the clever, long-tailed tit covers her dome-shaped nursery with them, so as to make it so like in colour to the grey branches round, that it may have a good chance of escaping the view of the thievish mouse and magpie, or still more thievish birds'-nesting boy.

In the midst of the heath grows a wiry, white-branched lichen, the same which in Lapland is called reindeer moss, and which those useful creatures dig out far beneath the snow. If you are very fortunate you may perhaps find the beautiful cup-lichen, which raises among its crisp grey curling leaves a little cup like a fairy's wine-glass, edged with crimson spots. Or there is an odd brownish-grey one with branches and a marbled pattern, which the Canadians call *tripe de roche*, and which served Sir John Franklin and his companions for food in their great distress during their journey of discovery in North America.

I said the lichens prepared the way for other vegeta-

tion, and it is by their decay they become a sort of mould, into which mosses and all the mushroom tribe may insert their tiny roots. The brown bristles upon our bricks are the beginning of moss, and the green tuft is a collection of small plants of moss, each perfectly arranged, like the plants of larger organization.

See, each little moss plant has a number of exquisite thready green leaves, spreading out round its taper thread of a stem, like the perfect model of a lily plant; but the stem, instead of ending in blossoms, has a sort of brown cap or purse at the summit, sometimes round, sometimes peaked, sometimes brown, and sometimes green. Under this cap is a purse, with invisible seeds. The cap either splits at the side or falls off, and everywhere do these seeds grow in beds, containing myriads of tiny perfect moss trees at the root of the oak or the beech, in the crannies between tile and tile, along the borders of neglected walks, on the sides of rocks, wherever they can find the modicum of nourishment which they need for their little spark of life.

Though mosses are so common, people have been content to call all the kinds moss, without finding English names for the different sorts; but perhaps you will think it as well to be able to tell one from the other, so I will mention one or two Latin names.

There is one graceful, soft, bright light-green kind, like a fern leaf, twice pinnate, and its shape too elegant to describe, growing on banks and under the roots of trees, the moss we chiefly delight in, and can pull out in soft springy handfuls, for the making of moss-baskets, the packing of flowers, or for the filling of "beau-pots," with snowdrops and hepaticas reposing on the green bed. What a fresh smell comes with it, of pure earth, as we pull it out from the great green

cushion where it grows, and where we could hardly make a hole, pull away as much as we will! I rather think this moss is that most in esteem for lining the cradle of the wren and hedge-sparrow, though they don't call it by the name I must give you for it—the proliferous *Hypnum*, proliferous, because it grows in such quantities. Its long thread-like stalks wear a pointed night-cap, like that of the *Elscolchia*, like its splitting at the side when it falls off. Another which creeps in long, scaly, light-green lines about the roots of trees, is the meadow *Hypnum*, and its likeness growing on walls, the silken *Hypnum*.

The *Bryum* moss is not creeping like the *Hypnum*, but rather in little separate plants, growing as close together as possible, as thick as they can stick.

I have just pulled a little tuft off a brick in the churchyard wall, so small I could hardly carry it home, and yet containing no less than eleven perfect plants, their brown stalks as slender as a fly's leg, supporting little green urns, covered by long-pointed caps, nearly half off, and clusters of the smallest green leaves imaginable round the root. All this I have seen without a glass, and so may you any day. I believe this is the bearded *Bryum*, but I will not make sure. One of these morsels of plants grows in quantities all over the walls of Jerusalem, and some have thought it might be the plant meant when we hear Solomon spoke of herbs from the hyssop that groweth out of the wall up to the cedar of Lebanon. The swan's-neck *Bryum* is dark green, growing in bogs; a dark moist plant it is, with more root than usual with mosses, bringing up quantities of wet mud with it; and generally where you see it looking smooth and cushiony, is the most quaking place. The swan's-neck wants so little soil that it



covers the loosest of all the mud ; and if you set your foot on it, a splash, and a leg painted with black peat, is sure to be the consequence. I fancy the green scaly moss of our woods is another *Bryum*, but I am not sure.

Club-mosses also grow in bogs ; they crawl about in long imbricated stems, that is, stems made of leaves fitting one into the other, and have their capsules in large round brown heads at the end of the stems. They are called fox-tails, and always put me in mind of the fresh air of mountains. These, like the swan's-neck, prepare the way for the turning wet marsh into firm ground, for they begin to bind it, and make it less watery, and in time fit to bear more useful plants. The unseen blossoms seem meant to prepare the way for others—the lichens.

The lichen is the last vestige of vegetable life, and also the first. Even in the arctic regions it contrives to grow upon the snow, and to cover it with a field of dazzling crimson, which has often amazed the northern traveller ; it is the first upon the rock, the first to find out that man's hand is neglecting the constant rubbing and care that alone can keep off these most subtile and minute of created things. On the lichen feeds the moss ; in the soft damp nests formed by decaying moss, other seeds germinate ; the chickweed, the tiny speedwell, the stone-crop, insert their roots, and find nourishment, till nature, or rather nature's Master, has brought life out of death, beauty and vigour out of rottenness and decay.

Nay, perhaps to speak more truly, it is flesh alone that really corrupts ; in the vegetable world, which partakes not equally of our doom of sin, decay is not so much real decay as a change of life. Before the

last leaves have died away on the aged oak, the rotten wood has become a whole garden of green flourishing plants, gathering round it, embracing it, and rendering its last years as lovely, though not perhaps as noble, as its prime.

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## CHAPTER X.

### NOVEMBER PLANTS.

#### FERNS.

WE must still keep to the flowerless plants, and there are many of them which are exceedingly beautiful and full of interest.

First of these are the ferns, pretty green waving plants, which seem to be all leaf and nothing else ; but these leaves, as they are commonly called, have not the same properties as those of the plants whose structure is visible, and botanists therefore named them fronds. Look under some high hedge or sheltered bank, and there you will find a profusion of long dark-green shining leaves, of a very firm leathery texture, and with tough black stalks. This is the fern called hart's-tongue, and it is at this time in full blossom, if the brown seed-cases which it possesses may be called blossoms.

See here, on the under side of the leaf, or frond, are a number of pale, brown, raised ridges, ranged with the utmost regularity along the veins of the frond, a long one and a short one alternately, and the brown colour contrasting very prettily with the green of the leaf. These brown ridges are cases ; after a time they swell

and burst, disclosing a number of very tiny round grains, which, perhaps, you might think were the seeds; but no such thing, they are only the purses that the seeds are in, and if we could look at them with such magnifying eyes as the dragon-fly wears, we should see that they are shaped a good deal like an ancient helmet, and that they contain a multitude of seeds smaller and finer than dust. If you want a multiplication sum, you may find out how many seeds one hart's-tongue plant might bear in a year, reckoning each purse to contain fifty seeds, each ridge four thousand five hundred purses, each frond eighty ridges, and each root to produce twelve fronds! I only wonder what becomes of all that do not grow, and why the world is not one wood of hart's-tongue.

So small are the seeds, that gathering them is a proverb for what is impossible; and, as we tell little children, that if they can put salt on a bird's tail they can catch it, so it is another saying, that by gathering fern seed you may make yourself invisible, both being what nobody has ever done.

The scaly hart's-tongue grows on old walls; its fronds are small and short, thickly covered with brown scales at the back, and of a curious zigzag form. They shrivel up to nothing without moisture, but spread out, broad and polished, as soon as a shower has refreshed them.

The handsomest kind of English fern is the tall flowering fern, which our Saxon ancestors named Osmond, after one of the titles of Thor, their god of thunder. Perhaps it raised its high, firm, royal-looking fronds round his rude stone altars, out far away on the moorland wastes, for it is chiefly found growing on the damp, boggy, stony moors, which seem to act like

sponges, to catch the water of the clouds, and disperse it in streams and rivers from among the hills.

Though it is called the flowering fern, the brown, granular appearance which forms a spike at the top of the frond, is not really the blossom; it is only formed by the edges of the leaflets being curled in, over the almost invisible ridge of purses.

In the gnarled heads of old pollards, in crevices of stone walls, or on the sides of quarries, you may often see the polypody, its green frond deeply divided into leaflets, the centre of those on one side coming just opposite to the division of those on the other. Here the purses are collected together in little round golden dots, ranged regularly along the back of the leaflets. I like the polypody, in spite of its ugly, half Greek, half English name, which means many feet. It is one of those cheerful, humble things, that seems to have a kindness for what is venerable and excellent, even in decay. It hangs round the aged hollow tree, and feathers up the broken arch of the ruined chapel, through autumn and winter, just as we should cheerfully, though soberly, hold fast to the old bulwarks of our faith, and of our law, and do our best to adorn them by our adherence, though some may tell us that their bright summer day is gone and past, and there are only winter storms to come.

Another fern which loves to deck the ruined wall, and which I first learnt to know among the old tombstones in the churchyard, is the black maiden-hair, a pretty little plant, its stalk jet black, and tough as wire, the round leaflets arranged in pairs, with clusters of little black purses in round dots upon their backs. The roots, too, are very hard and black, and squeeze in perfectly flat, between stones and bricks, in the most determined way.

The black spleenwort, and rue-leaved spleenwort, are also often to be found with fronds of a very pretty shape, and the blossom spread over the back in elegant patterns.

Another kind, the sea spleenwort, grows in hollows of rocks, refreshed by the sea-breeze; but the most elegant of all the race of spleenwort is the queen of ferns, the exquisite lady-fern. Her frond is tall and slender, delicately green, and beautifully cut into little scalloped and pointed side-wings, with brown spots of fruit at the back. My Lady-Fern is too choice and elegant to be very common; her bower is usually the shady, rocky, woodland glen, under old gnarled trees, and by the side of rushing streams; and so tender is she, that it is nearly impossible to gather and carry her home without her withering.

“Where the copsewood is the greenest,  
Where the fountains glisten sheenest,  
Where the morning dew lies longest,  
There the lady-fern grows strongest.”

Worthy to be handmaids to this dainty lady, are the far more common, though scarcely less graceful, shield-ferns, so called, because they have a tiny brown shield, which shuts over the assemblage of small helmets, in their multitudinous little dots of blossom. In early spring we see them on the sides of dry banks, or under hedges, pushing up their fronds, doubled in half, folded up tight, and covered with brown hair, looking like some rough caterpillar. As they grow on, the fronds, with their lower part unfolded, and the upper rolled up in a graceful spiral line, put us in mind of a shepherd's crook, or still more of a bishop's pastoral staff. And when they unfold, how beautiful they are! That long, gracefully swelling, bending, tapering, plummy form, like

the feather in some royal cap of state, so fair in the outline of the whole, and still lovelier when examined closely, little plumes parting out on each side of the stalk, and each of these bearing such beautifully-cut little leaflets, so regular in their irregularity, each with one lobe pointed and another swelling, and a little sharp peak at the end of each. No one that has not tried can tell the pleasure there is in searching out the beauty of forms of one piece of shield-fern ; and though all have this general character, yet they are so infinitely varied, that you will hardly find three plants which have their leaflets exactly of the same shape. One is only inclined to ask, "How can things be so beautiful?" And look at the whole plant, with some fronds standing up straight, some bending over and showing the little brown specks of fructification, the shepherd's crooks unfolding themselves, and the rough caterpillars round the root, all spreading out on some sweet, shady, spring bank, and perhaps feathering over a bunch of primroses or of violets. Yes, honour to the shield-fern, in its quiet hedgerow nest, with the glow-worm sheltering under its wavy bower, and the robin and linnet nestling in the long grass behind its screen ; it is one of those beauteous things that most aid to make spring fair and lovely, and yet are least regarded.

Honour, too, to the brake or bracken in its woodland or moorland haunt, spreading its wings like branched fronds on their tall stems, the covert where the timid fawn lies watching for its mother, and where the grey rabbit sits with its broad ears and large eyes turned heedfully about to watch for the first token of danger. It is difficult to find the seed-bearing part of the brake, as it is not, as usual, in dots at the back of the frond ; but the margin of the leaf is turned over like a hem,

and the purses are packed safely away under this protecting edge. Its Latin name means the eagle-fern, perhaps because it is like the outspread wing of an eagle; but it is also said to be because, cut the stalk in two where you will, you may always find a dark mark in the shape of a spread-eagle, or as some say, of an oak tree.

It grows to a great height in damp, woody places, but is short and small on open commons, and as it turns brown early in the year, before the heather and dwarf-furze are in blossom, its brown tints blend with their purple and yellow, and give a beautiful colouring to the sides of mountains. I remember once seeing one of the hills on the north coast of Somersetshire, early in August, in the full glow of the heath and furze blossom, contrasting and mixing with the brown brake, and with a rainbow standing across it, so that the colours of the hill, seen through the rainbow tints, were indescribably beautiful, and like nothing I have ever seen, except those many-coloured specimens of copper ore, called by collectors, peacock ores.

The bracken is the most useful of all the British ferns. It is used as litter for cattle, and as its ashes contain a good deal of potash, they are used in making glass. In the forest of Deane, these ashes are rolled up in balls with clay, and serve for home-made soap.

There is a very curious autumn fern called *blechnum*, or hard-fern, which has two sorts of fronds, one bearing blossom, the other, as far as we can see, useless. It grows in the same kind of places as the hart's-tongue. The barren leaves are broad, and only moderately scolloped at the edges, the fertile ones, the very skeletons of leaves, almost all the green cut away, looking as if it had been eaten by caterpillars, tall, thin,

starved, and curly, both together very much like the monsters that little boys sometimes draw on their slates to represent Englishmen and Frenchmen, one all breadth, and strength, and solidity, the other tapered and cut away to nothing.

The adder's-tongue has its fertile parts also on a separate leaf, which is long and narrow; but this grows in wet, boggy places, and is not very common, so that I doubt whether you will be able to find it.

The rock-brake, or mountain-parsley, is a very pretty kind, which grows on the grey stone walls on the Cumberland and Westmoreland hills. The barren leaves are very elegantly cut, like parsley, and the fertile ones small, and covered at the back with a pattern of pale brown.

The best place for seeing ferns is in rocky woods, near streams; for though they do grow in hedgerows and woods, in more fertile places, it is by no means as well, or as luxuriantly. Their proper home is on the rugged side of some steep bank of rock, nodding over some clear, dashing mountain stream, which keeps them ever damp with its spray, hanging almost into the waterfall, and clinging to huge bare stones which the foot of man has never trod. High up, the hart's-tongue stretches out its tall clusters of dark shining leaves, contrasting with the sober rock; on the bank, the osmond raises its high and royal head. The polypody and the little black maiden-hair creep about in the crevices of the ivy and moss-grown stones, while between them, and in all their clefts and crannies, the lady-fern, and all her shield-bearing attendants, are feathering themselves up in the pride of their beauty, rejoicing in the pure fresh air, and delicious shade. It is a strange and solemn thought, that there is so



much wondrous beauty in this world that man neither sees nor regards. It makes us wonder whether the angels see it, and marvel at our carelessness of the fair gifts which have been bestowed on us.

On the opposite side of the world, ferns are more important than they are here. The fern root is the chief food of the native of New Zealand, and in South America they are actual trees, hardly to be distinguished in the appearance of their foliage from palm trees themselves; but these wonderful tree-ferns seem peculiar to that strange half of the world, where everything is contrary to what we see it here.

Yet ferns and mosses, and those odd creeping things, club-mosses, which we find in peaty bogs, have done wonders for us here, and things which we can by no means understand.

Peat, as those see for themselves who are used to a peat fire, who have helped to pile up the stacks to dry, and who think a wood or coal fire far less agreeable, consists of decayed moss and other vegetable matter, apparently matted and pressed together. So it is in the great Irish bogs, which the people love so well, that they say that the finest country looks lone and cold without a bit of a bog in it.

Far down, this peat is black and hard, and it is believed by geologists, that from having been subjected to very hard pressure, as well as to the action of fire, it has in the course of thousands of years become coal! There is a marvellous notion! but what makes it seem to be true, and what indeed probably put it into the heads of these searchers into the hidden things of the earth, is, that it is not uncommon to find impressed upon the surface of a piece of coal the exact form of a fern leaf, or of a piece of some large moss, like the print of a

seal. I remember when I used to have a great desire to find one of these fern-leaf pieces, and being once caught in the coal-hole in the midst of a search; but I never found one, and I would not recommend you to follow my example, as I believe the colliers always pick out these pieces and sell them as curiosities; but if ever you meet with a collection of minerals, you will probably see one of these curious impressions.

What makes it still more wonderful is, that the ferns are not such as grow in England, but are of the large handsome kinds which are now only seen growing in tropical countries, so that it is thought this part of the globe must once have been much hotter than at present. Or rather, we may perceive how very little we know about the matter at all, and that every fresh thing we learn is but like a window opening to show an immense field far beyond, in every direction, which we can never explore thoroughly.

“Canst thou by searching find out God?” Searching to the utmost will not enable us to find out the nearest of His works; and yet He, the Maker of all, has made us know more of Himself than all our searching can find out respecting one of the golden dots on a fern leaf.

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## CHAPTER XI.

### DECEMBER FLOWERS.

#### CHRISTMAS EVERGREENS.

DECEMBER is come, and Advent with it, warning us to look forward to Christmas, with all its mixture of solemn thoughts, and of joyful ones, of seriousness and mirth.

And as the animal world had its share in the joy of the first Christmas season, when the ox and the ass

welcomed their Maker as their Guest in their caverned stable, when He first was despised and rejected of men; so the vegetable world of creation has had its invitation to join with Christians in the bright greetings of His coming, year by year. "The glory of Lebanon shall come unto Me, the fir-tree, the pine-tree, and the box together, to beautify the place of My sanctuary, and I will make the place of My feet glorious."

Many a tree does its part in making the sanctuary glorious with carved work; the cedar in southern countries, and the oak in our own, have especially this honour; but this is with their solid wood, the beam and the timber. In the southern hemisphere, where of course the same Christmas as ours is kept, but where the 25th of December is a long, bright summer's day, like what St. John Baptist's is here, there are wreaths of gay flowers to dress the churches, and in flowery Mexico, the whole space round the altar is a very wood of fragrant orange trees and roses.

We so prize and love our plant of sacred joy, that its winter title is Christmas, and at all times it is known as holly, or holy, a little altered, just as holyday has become changed into holiday. For its proper name is holm, and some people make the distinction of calling that holm which has no berries.

Who does not know the pleasure of setting out on Christmas-Eve with knife and basket, to bring home the bright prickly boughs, the choosing and picking, the jumping and climbing for the best pieces, with the thickest necklaces of coral beads wound round and round them? But mind one thing on this merry expedition, do not break and tear the trees, do as you would if their master was looking at you; for remember

it is no way of doing God honour to take what is not lawfully permitted.

What pleasure in earrying it home! admiring at every step the thick clustered berries, and the dark glossy leaves, so pinched up and tapered off into their strong solid spines; what pleasure in showing it to mother, and in sticking it wherever it will go, over the fire-place, everywhere about the dresser, and especially in the window, to peep out, and, as it were, to say to every passer by, "Christmas! Christmas is come!" Is it not a Christmas carol in itself?

Then there is the taking it to school, and hoping that the mistress has not had more brought to her already than will eover all the bonnet pegs. Where the bonnets are to go, nobody knows or cares just at present, places for holly are all that is wanted. Then there is the sending it into the next town for some sister, or cousin, or aunt, who eannot get any holly for herself, and would hardly know Christmas without it. And perhaps some echildren who read this chapter may have a greater pleasure still; perhaps they may have been ehosen to help in the solemn work of beautifying the place of the sanctuary, of dressing the ehurch with the beautiful green boughs. Highly-honoured children, take care, remember that this is work fit for angels, and that those who share in it should be as like angels as they may, while still dwelling upon earth.

You, too, who are not ealled on to take part in this work, remember that you in your own plaees may still be beautifying the sanctuary, growing up as the young plants, and bearing fruits of righteousness, fit for the holy trees which the Lord hath planted in His own garden, to form His crown of rejoicing at the last day.

Those thorns and red berries have a very solemn

meaning, for they are to remind us of our blessed Lord's Crown of Thorns, and of the thick, heavy drops of precious Blood that He shed for our sake; for had not those drops been poured out, Christmas would have had no joy or mirth for us. They must remind us, too, as I said before, of the fruits which are required from us, of the suffering that comes before glory, and of the hedge of thorns and pricks which meets the sinful man. Noble tree, how many deep lessons, and how much of cheerfulness has our Maker implanted in it!

One more lesson still, for you may observe in an old holly bush, growing in a good damp soil, never clipped, and not liable to be eaten by cattle, that the leaves, especially near the top, cease to arm themselves with prickles, and only have one sharp dart at the point. So if we have any sharpness or evil tempers in our youth, we must, as we grow older and nearer heaven, smooth them gradually away,

"Till the smooth temper of our age should be  
Like the high leaves upon the holly tree."

The holly tree blossoms about May, and has a small white flower in clusters round the little boughs, with four stamens and four pistils, very short, and all joined together. These four pistils become four seeds, each with a separate cell, within the scarlet jacket of the berry. A young holly plant is very pretty when it first comes up, with a very small brown leaf on each side of the little stem, with all their little spears standing boldly out on all sides, still too soft to prick at all.

Sometimes holly is found with yellow berries, and sometimes the leaves are variegated, with a white trimming all round the leaf. These are prettiest at the time of the midsummer shoot, when the young white leaves are quite pink. Or there is a variegated

sort in shrubberies, with the whole surface of the leaf bristling with little spines like a sea-porcupine.

After all, none of these new fashions are equal to the noble old holly tree, rising up with the dark green leaves so proudly in the midst of the heathy wood, casting such a shade around, and affording such a shelter close to the trunk. Or a tall, clipped holly hedge, a very wall for closeness, far higher than garden wall ever was built, and giving one a notion of breadth, firmness, shelter, and resoluteness in defending its master's property.

The most famous holly hedge that ever existed was at Says Court, the house of Mr. Evelyn, a very excellent man, who lived in the time of Charles II., and who delighted in trees with all his heart. His hedge had a great misfortune; for when the Emperor Peter the Great of Russia came to England to learn ship-building, Mr. Evelyn was desired to lend him his house at Says Court, and Peter, who had not learnt in his own country to take much care of other people's property, not only put the house in great disorder and spoilt the furniture, but chose for his favourite amusement, to be driven in a wheelbarrow through the midst of the famous holly hedge. I wonder why he could have chosen such a sport! Perhaps it was for the sake of mischief, or perhaps it put him in mind of storming a town, for I am sure it must have been almost as disagreeable. People will do things for play, at which they would grumble finely if they were obliged to do them.

The holly tree has kept us a long time, and we must go on to its companion evergreens. I believe the reason evergreens do not lose their leaves in autumn is, that the sap does not cease to flow into the foot-

stalks till the next summer, after the young leaves have budded forth, so that the stems are never left quite bare. You may observe, too, how thick and leathery is the texture of the holly leaf; so thick, that the ribs are hardly visible, but seem covered with a double case, the dark green upper skin, and the pale green lining. The ribs, though they appear so little, are very firm and strong, and survive all the rest of the leaf, as does the hard horny border which edges the leaf, and forms the spines. You may see the form in the skeletons of last year's leaves, under the holly tree.

Mistletoe, curious thing, is the next companion of holly. As to its name, that is a difficult question. Missel is said to mean to soil, and the plant to be so called because its berries soil the claws of the misselthrushes; but then, on the other hand, those learned in birds, say that the thrush is so called because it soils its toes with the berries; and so I suppose the mistletoe and misselthrushes must settle as they can which is the original owner of the name.

Mistletoe has come to a Christian use at last, though everyone who has read a page of English history knows what a part it used to play in the old days of the Druids. I daresay you are tired of the old story of the Archdruid climbing up the oak tree with his golden knife, and the others catching the mistletoe in the white cloth below. The chief wonder is, where they found it on an oak tree, for in all England in these days there is only one piece known to be so growing. Did they use it all up, or was it only its rarity that made it so precious?

In our days it grows on thorns and apple trees, serving them instead of their own leaves in winter, on

poplars and limes, and on many other kinds of trees. It roots itself in their branches, and feeds on their sap, instead of drawing its own from the earth. Plants growing in this manner are called parasites. It has a bushy stem, often forked, of the same pale, yellowish green, or greenish yellow, as the round hard leaves. The blossoms are of the same colour, and the stamens and pistils not only grow in different flowers, but on different plants; some plants having four stamens in each of their blossoms, and others two pistils in each of theirs. This explains why some pieces of mistletoe have no berries, since, as you know, stamens can never become seeds. The berries are white, about the size of a currant, and contain two seeds, in the midst of a quantity of very sticky pulp.

In some places the beautiful fruit of the skewer-wood, or spindle-tree, is used with the holly and mistletoe. It is extremely pretty, consisting of five round, pink purses, all joined together in the middle, and with a cleft in the centre of each side, which opens and shows a seed, enclosed in a brilliant, dark orange, wrinkled skin, contrasting with the bright pink outside. Though pink and orange certainly would look frightful together in our bad imitated painting, yet in nature's own exquisite colouring, nothing can be more lovely. The blossom is nothing like so pretty as the fruit, it is small and green, and belongs to the great order of pentagon flowers, as, indeed, might be guessed from the five-cleft form of its beautiful purses. The leaf is not evergreen, and has, long ago, departed; the wood is very hard, and is used for spindles and skewers.

Now for ivy, graceful ivy, with its dark green leaves, of such multitudes of different forms. Only try to



find two plants with their leaves alike. Some have three points, some again five, spreading out like fingers; some even seven, with perhaps a little excrescence on each side, close to the stalk, as if it wanted to grow out into two more; some have obtuse angles, and a broad space of leaf; others have long-pointed fingers, cut away into peaks, flounced and furbelowed here and there. If the ivy plant is sick, or has got into poor ground, it does not wither and pine, not it, but it paints its face gayer than ever, and comes out in some new freak, either with bright red leaves and yellow veins, or with yellow leaves and red veins; not a pining green and yellow melancholy, but all glowing and gay, as if resolved to put a good face on the matter, and not own that it is uncomfortable. It is just in the same way that it tries to persuade the trees that they are leafy and green, instead of being old and dry, and dead. It is a pleasant thing to make a collection of ivy leaves of different forms. A cheerful thing it is, winter and summer all alike, catching the light on its dark glistening leaves, so that they glance like a stream of white sunshine all down the trunk of the tree.

In every shady place the ivy will grow; the beech tree is the only one which does not foster it. It creeps along the ground, stretching out long green feelers, with tender little leaves, till it finds a tree or a wall to fasten itself upon. Its fastenings are very curious; they are little, soft, short fibres, like a caterpillar's feet, or like a short, rough beard. They are not roots, for the ivy has its own root in the ground, and lives on its own resources, instead of sucking the sap of the tree, though perhaps they may imbibe the moisture of the rain and dew. As the ivy grows

older, the lower stems become actually wood, bark without and yellow solid wood within, sometimes growing so large that boxes, and even a small work-table, have been made of them. These large woody stems generally cease to have fibres, though I have seen one so thickly overgrown with them, close, rough, and brown, that it looked like some shaggy animal climbing up the tree. It is the creeping clinging shoots that bear the curiously-lobed leaves, which never have any blossoms. It is not till they have reached the top of the wall, or the large branches of the tree, and have established a good hold on them, that they begin to throw out branches, bending downwards, without beards, and with leaves heart-shaped or round instead of peaked and fingered, only resembling the lower ones in the dark colour, solid texture, and the numerous principal veins all rising at once from the long footstalk.

At the end of these upper branches there form, towards the autumn, round heads of blossoms, each upon a little green stalk, with a tiny calyx of five black teeth, supporting five small, green, spreading petals, within which grow five stamens, surrounding a round yellow germ, which bears a short style and no stigma.

As the blossom of the ivy does not come out till October, the black berries are hardly ripe till after Christmas; they hang on for a long time, and are the great store-house of the birds in the spring, when all the autumn berries are gone.

This bushy, tangled, blossoming, round-leaved part of the ivy is indeed precious to the birds, for it is their winter dwelling-house as well as their granary. Hear what a chirping and scolding of sparrows proceeds from it, as if all the rogues were chattering at

once, like a set of idle children; and here they come, tumbling out, flapping their wings, rolling about in the air, screaming and chattering, far too angry to think where they are going, till suddenly they find themselves falling, they put their wings to the right use, perch on some tree, cock up their tails, give a self-satisfied twitter, and there is an end of the quarrel.

How often the blackbird comes rushing out, in a terrible fright, giving a loud screaming twit, twit, twit, just as if for the sake, foolish fellow, of telling where his nest, with the green muddy-looking eggs, is to be found! What a notion of snugness, and dignified great eyes, perfectly at home, is conveyed by the saying, "an owl in an ivy bush!" And how many children are there who do not love the very brown back of that charming book which begins, "In a hole, which time had made in a wall, covered with ivy, a pair of red-breasts had built their nest," and who look at every ivied wall as the home of Robin, Dicky, Flapsy, and Pecksy?

Old ruins are the especial place for ivy, which hangs over the wall, trying to shroud and cheer its decay, stretching its delicate young shoots gracefully along the shafts and columns, as if to cover them with those exquisite mouldings and forms of nature, which put to shame the best that man can accomplish.

Another of our pretty Christmas berries is the knee-holm, or butcher's-broom, a low plant which grows on heaths. It has a dark, green-branched stem, bearing a number of egg-shaped evergreen leaves, each terminating in a very sharp prickle. On these leaves are perched the very small green blossoms, stemless, and sitting on the leaves. Some plants have three-stamened flowers; other flowers with a single pistil, which by

the winter becomes a large round berry, of a beautiful waxen-looking red, sitting in great dignity on its dark pointed leaf.

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## CHAPTER XII.

### JANUARY PLANTS.

#### NEEDLE TREES.

HERE we come to our walls and ramparts. I do not mean the wooden walls of old England, but the ramparts of the whole world, against a very sharp-cutting enemy, who wears a beautiful thick white sparkling coat, brings with him a quantity of sharp little spears and diamond weapons, and perhaps this very New Year's Day may be driving pins and needles into your fingers and toes, and pinching your nose till it is fast turning into a purple button, to say nothing of heaving carrots and turnips out of the ground with fairy levers, of splitting lumps of chalk into flakes, and of spreading a marble surface over the pond.

Ah! you know now that I mean the gentleman whom the ancients used to call Boreas, or north wind, but whom we know by the less grand and more homely name of Jack Frost.

After all, we hardly like to call Jack Frost an enemy, when he comes so pleasantly to clear away the dark heavy mist, clean up the muddy roads, brighten everything, spread his beautiful tracery on the window-pane, and make such delightful slides on all the pools. Yes, he is a pleasant visitor for well-clothed, healthy,

active people ; but that is, thanks to these ramparts, these guards which I spoke of, who let no more of his battalions come through them than is good for us, but stand boldly up to keep him out with a close phalanx of spear points as sharp as his own.

Between the rest of the world, and Jack Frost's domains, whether in his own especial kingdom, the North Pole, or in his scattered fortresses, the mountain tops, where he has reigned alone since the beginning of the world, there stands a whole army of warriors, their tall, straight, lofty heads, pointing up to the sky, their many arms bending round on all sides, and bearing more spears, and spikes, and daggers, than even the hundred-armed giant we hear of in old fables.

Countless are those tall, slender guards, in their garments of dark green and silver ; bold, honest, and true they are, scarce bending their heads to many a fierce wild attack and storm of their besieger, General Frost ; and though not exactly "each stepping where his comrade stood," yet if one does crash and give way beneath some sudden blast or some lightning bolt, holding him up and supporting him for years upon years on their strong faithful arms, even perhaps till his sons have grown old enough to take his place in the ranks.

They bear the whole weight of the tremendous avalanche of the Swiss mountain, and by their multitude and firmness, stop it from descending upon the village, and crushing house and inhabitant beneath it ; and they may well guard the house, for they themselves have a large share in its building. Nay, even though cut down, and carried far from their native homes, they guard our thresholds and support our roofs still.

Has this been a long riddle, and have you not found out who these brave defenders are? Well, I will help you to their name. At their head there is the stately and highly-honoured cedar; the Chilian sentinels, who wear scaly green armour, are called *Araucaria Imbricata*, or Puzzle Monkey, because even the monkeys cannot climb them, so cased are they in pointed scales. The main body of warriors in America, Norway, and Switzerland, are the pines, and where we see them in comparatively fewer numbers, where they are less needed, we call them firs. It is said that at Florence, where these shields from the cold blasts of the Appenines have been cut down, it has become so much colder, that many tender plants have ceased to grow there.

We have very little idea, from such as we see here, whether singly or in plantations, of what the real grenadier guards are—the great pine-forests of America and Norway, with their dark depths and solemn stillness; indeed, we are so far removed from the enemy's borders, that Providence has not made one pine native to England, and there is only one British sort, namely, the Scottish pine, which is usually called a fir.

However, we see enough of them in plantations to perceive how beautifully they are constructed for their object. Look at the spruce fir, the commonest kind, a Norwegian species, and see its tall spiring head, growing by straight shoots, one perpendicular, the others perhaps three in number, spreading out in different directions, all slight, and with their dark needle-leaves following their direction, and keeping to them, close and snug, so as to afford no opportunity to the wind to get hold of them and tear them off. You may tell a fir from a pine by the leaves; those of the fir grow out

singly, while those of the pine have little bundles of long points, all springing from one point.

If the fir or pine was not evergreen, it would not so keep back the forces of winter; if its leaves were broader, like those of the laurel, they would flutter in the wind and be torn off; if its head was not tapering, so as to be yielding towards the top, it could never bear the force of the storm, but would break short off. Therefore each successive year, as it puts out the one upper shoot, it strengthens all those that grow beneath it, and each tier of branches also put out a star of shoots at their extremities, so that it is thicker and stronger in the lower part.

It is likely, too, that these lower branches will have a considerable weight of snow to bear, since they do not let it fall through them like the leafless boughs of deciduous shrubs. Therefore—but this you can only see in a very large fir tree, such as we do not often find here—they grow in a graceful bending form, sweeping down from the main stem, spreading out backs ridged like the roof of a house, and arched to give them strength to bear the snow, and always tapering downwards so as to let it gradually fall off, and thus avoiding the being crushed under it. The wood, too, is extremely hard in these branches, as any carpenter or woodman will tell you, and yet such is the weight of these long sweeping boughs, that comparatively a slight blow on the upper part, near the trunk, will snap them off.

The fir tree, too, takes considerable care of its seeds, since they have to grow up in such inclement places. Its blossoms are maturing from the autumn in little round scaly buds, which old Evelyn calls “their winter lodge.” In summer these buds expand, the barren

ones into a sort of catkin covered with very yellow pollen, the fertile into a little delicate soft fir-cone, consisting of a succession of scales, fitting beautifully one into the other; and wedged into the very bottom of these scales, are two very small seeds, they can hardly be called pistils, as they have no style, and scarcely any stigma. The scales only open themselves for a little while, just to let in the pollen; as soon as that is done they shut themselves close up again, like a box, over the little seeds, and there the cones hang on the under side of the branch in pairs, firm, compact things, a fortification in themselves, each scale serving to guard not only its own charge of twin seeds, but those of all the rest; for one scale of a fir-cone cannot be pulled off without spoiling the appearance of the whole cone.

The Scottish pine, and some others, have scales which are actually little wedges of solid wood, which are not easy to pull apart till the seed is ripe, when they fall down and open of themselves. The Weymouth pine has perhaps the nicest cones, long and narrow, with even brown scales, fitting one over another like armour, and ranged in a spiral winding line, not in rings, but each single scale growing a little higher than the last. They are the pleasantest to pick up, and look prettiest when burning, when the main part of the cone is black, and every scale has a flame-coloured border, and then it goes off with a crack which makes you start, and the turpentine lights up into a clear flame. The leaves, like those of all evergreens, make a beautiful cracking and hopping, as everyone knows who likes burning the Christmas holly on Candlemas-day. I believe the reason is, that there are little air-vessels between the two coats of the ever-



green leaves, and the sound is made as the vessels burst and the air breaks out. How pleasant is the resinous smell of the burning fir branch, and it is said that the smell of the fresh boughs in an American forest is delightful.

The silver fir is so called because the leaves are white on the under side. The Scottish pine is more branching than its northern brethren; it has very long leaves, more like threads than needles, and growing two and two, spreading out like a pair of compasses.

And what shall we say of the uses of pines? Deal boards, pitch, rosin, turpentine; never mind all that, we don't want such great things in a chapter on flowers, and you learnt it long ago in your school reading-books, or in Harry and Lucy you have read of the slide of Alpnach.

There is one river in Norway where the pine-trees are thrown in at the source, and left to find their own way to Bergen, with a direction to their owners on their trunk, (like other travellers,) and down they come with the stream, tumbling over waterfalls, whirling round rocks, scrambling and dashing along as best they can, till they are fairly caught at Bergen, and bestowed in their master's timber-yard. In some parts of America the floors are strewn with a carpet of young fresh pine-shoots, as here in old times the floors were covered with fresh rushes.

The greatest and most noble of all the needle-trees is the glorious Cedar of Lebanon, the tree which formed the beams of Solomon's Temple. It is not tall, but a very wide-spreading magnificent tree, even as we see it here; and in its native home no one can look at the broad old trunks, few and shattered as they are, without reverence for them as for something sacred.

The larch grows almost as far north as the fir, and like it, bears cones and needles; but it is deciduous, that is, it lets its leaves fall, for they are far more tender than those of its companions, and have no double coat, so that they are not fit to stand the winter. If you wish to see anything beautiful, go in the spring and look at the young larch blossom, the exquisite little crimson catkin of scales, fit to be a tree in a fairy forest, and afterwards at the soft purple conelet before it grows to the hard, green, knobby, scaly thing of autumn, or the brown one you may pick up now.

The cypress is another cone-bearer, not English, but used in Italy to shade and ornament churchyards with its dark spires; and in gardens you may sometimes see a beautiful light-green sort, called the deciduous cypress, because it becomes bare in the winter.

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## CHAPTER XIII.

### CLASSES OF FLOWERS.—CLASS I. AND II.

CLASSES of flowers! What, are flowers in classes, like school-children?

Well, we have good authority for saying that good gentle little school-children are

“Like spring-flowers in their best array,  
All silence and all smiles.”

And the same authority has shown us that there is a great deal to admire in the “order wild” of the vegetable creation, the rule and regularity which prevails in its formation, as, indeed, in every work of nature, or, more truly, of nature’s God.

Thus there is a sufficient resemblance between different plants to enable them to be arranged first in

different classes, and then in smaller divisions called families, which are convenient, as they enable us to find out the names of new flowers, or plants, and even to guess at a great many of their properties from their likeness to others of the same tribe. I think now of going through the classes, and telling you of such noted flowers as we may have missed in our chapters on the flowers of each month.

The first eleven classes are very easy, since they all depend on the number of their stamens; the first class including all that have one stamen; the second, two stamens; the third, three stamens, and so on.

As to the first class, that is a very small one indeed, I suppose because the supply of the pistil with pollen could hardly be trusted to only one anther. Jointed glasswort is one of these one-stamened blossoms, which you may find if you live near the sea-shore. It is an odd-looking pale green stiff branchy thing, with tiny green flowers, which you can hardly find, as they sit quite close to the stem, and scarcely show themselves, I suppose because they are obliged to take such great care of their single anther. As to its name of glasswort, it has acquired that because of the quantity of potash it contains, and which, combined with sand, forms glass. It is most probable that it was of glasswort that the shipwrecked Phœnician sailors made that fire on the sea-shore of which everyone has heard, and to which we owe it that our windows can admit light, and let us see the sky, and the trees, and the passers-by, without at the same time letting in wind and rain. Yet to look at the sand, and the green glasswort, and then at the transparent crystal window-pane, does it not seem too wonderful to be true, almost as strange a transformation as Cinderella's rags into the glass slipper?

Inland people may find a first-class plant, if they like to take the trouble of poking into a muddy stream of running water, where, waving slowly with the motion of the stream, they may find the marestail, why so called I cannot tell, since such a tail would look remarkably droll on any horse. It has a round, thick, fleshy stem, as all water-plants have, a root with a profusion of fibres, which, when you pull it up, bring an immense mass of wood and slime; and leaves which grow in whorls, that is to say, in circles round the stem, at intervals of about an inch. They are long and narrow; and as to the flower, it is almost as if there was none at all, for there is no corolla, and very little calyx. The blossoms, which come out in May and June, have no stem, and are wedged in at the foot of the leaves; the single anther is red.

Don't take horsetail for marestail, they are two very different things, and are as far removed from each other as possible, for the horsetail has an "unseen blossom," and belongs to the last of the classes, while marestail, though very possibly its blossom may be unseen by you, is in all the dignity of the very few number ones of England.

The number twos are much more numerous and much prettier. Most of them are very regular, and follow the same rules. One pistil with two divisions in the germ, two stamens, a corolla of one petal, but with twice two divisions, and a calyx, with twice two teeth, a berry, or a capsule, with two seeds. It is quite refreshing to get back once more to flowers with corollas, flowers which seem really like flowers, though it is only hearing of them, not seeing them as yet. Ah! but we do see the promise of some of them, and the memorials of them too. Look up to the taller

shrubs, and see the green buds swelling in the rains of February; look at those brown dry clusters of old seed-vessels, consisting each of two hard valves, which once enclosed the seed. Those pale green buds at the end of their dry branches contain the promise of our May garlands. There lie folded up the whole branch of delicate green heart-shaped leaves, and the cluster, the delicious cluster, of lilac blossoms, so thick, so solid, so sweet, so full of perfume, so beautifully and so irregularly shaped. May only the spring be warm enough to bring them out by the 1st of May. Sweet lilac! One of the first things I can remember was the glory of being carried on the shoulder of a kind friend to gather the nodding heads of the lilac blossoms, fresh and dewy with the spring showers; and there is one white lilac bush which I never look at without a feeling of shame, when I remember the sad day when I tore down one long branch in trying to reach the flowers from my own small height; the mark is still to be seen on the bark, though it happened twenty years ago.

The lilac's native home is in Persia, a hilly country, as you know, and therefore in parts a cold one, so that it is very hardy, and does not fear our winters. It is one of the kind plants which are the Londoner's friends, for it grows without being very much stunted, in the midst of the black gardens.

I wonder if you know those pretty lines about the tenth commandment, which say that as the daisy is like the lowly cottage child, so the lilac blossom nodding on its high tree, is like the high-born child, and how both alike are sweet humble flowers in themselves, doing their own duty where their Maker has placed them.

The leaf of the lilac is very pretty, and will serve

well to show you how most leaves are formed. Out of the sap-wood of the tree, within the bark, springs a foot-stalk, a bundle of small fibres, which, after growing some way, put forth on each side a number of little branches or veins, which again send out lesser veins, so that there is a close net-work, forming the frame or skeleton of the leaf. This net-work is filled up by a skin, or, properly speaking, by two skins with little vessels between them, wondrously arranged, but so as you cannot see them, for they are smaller than any thing you can even imagine. And the use of leaves? Besides shading us, and some kinds being good to eat, they are of great use to the plants, for by them they breathe. I do not think I can make you understand even what has been discovered about it; but by day they draw in the portion of the air, which by night they breathe out again, and this is what keeps them alive, with the sap flowing to the points of the leaves through all the net-work of veins.

The jessamine, which is also of the second class, always puts me in mind, more especially the white one, of the quiet humble grace and simplicity that is most often to be seen in the most nobly-born maidens, and which make, in every station, a lady's mind.

Those starry pearly flowers, are they not like the pearl of great price, the ornament of a meek and quiet spirit?

The throat of the corolla of the jessamine is remarkably long, which is what gives it its peculiar elegance; the buds are most gracefully folded, and the leaves, which consist of seven leaflets, are particularly elegantly formed. The fruit is a berry, but the cold of England prevents it from ripening here, for the native country of the white kind is India; of the yellow,

Madeira. The small yellow kind is hardier, as it comes from Circassia, and there have been "jasmine bowers" in England, at least ever since the time of Queen Elizabeth.

The olive, that sacred plant, which furnished the holy oil for anointing, is another of these plants with two stamens. It has a white blossom, and a large black berry, full of sweet oil, which is used for food all through the south of Europe and western Asia. The leaf is of a curious pale bluish green, and the trunk grows to a great size, and lives to a considerable age. Pilgrims to Jerusalem tell us how they have knelt with fear and reverence among the aged trees of the garden of Gethsemane, sprung from those which shaded our blessed Lord in His agony.

And do you remember that the oil of olive is a token of the grace of the Holy Spirit shown in love? And that the Psalmist says of the righteous man, that "his children are like the olive branches round about his table." Perhaps this is the reason that Olive and Oliver are Christian names; at any rate I am sure those children are more like olive-branches who sit in love and kindness round their father's table, than those who grieve him by strife and bitterness.

Ever since Noah's dove brought back the olive-leaf, it has been an emblem of peace and joy, even among heathen nations. The Athenians had a fable, that two of their deities, Neptune and Minerva, disputed which should be sovereign of their city, and it was resolved that it should be that one who could give the richest present to the new town. Neptune gave a horse, Minerva an olive, and that precious tree was adjudged to be so much the best gift, that Minerva became the great goddess of Athens, which was called after her

Greek name of Athene. There was a tree in the Acropolis which they fancied was the very one she had produced; it was burnt and cut down when Xerxes took the town, but they thought it a promise of their renewed prosperity when a fresh branch shot out from the root.

Sometimes when a nation intended to offer peace or war to another people, they gave them their choice between a sword or an olive branch; and this gave rise to the saying, that when a person wishes to be reconciled to his enemy, he holds out the olive branch.

The privet, with its white blossoms and black berries, is of this class, as you will find by examining it.

So is also the sweet-scented verbena, with those most fragrant of all leaves, which are sometimes called lemon. It comes from Buenos Ayres, and its splendid brethren, the creeping verbenas, purple, crimson, or dazzling scarlet, are, I believe, Mexican, and form the pride of gardens in early autumn. But the most curious history of all belongs to the little plain English verbena, a plant with insignificant whitish lilac flowers, that is generally to be found in hedges by turnpike roads, in July or August, coated all over with dust. Vervain, as it is called in English, played in ancient British days a most important part; indeed, the Druidesses made as great a fuss with it as the Druids did with the mistletoe. The strangest thing was, that they were never to touch it. It was to be gathered at midnight, at the full of the moon, in this manner: a long string with a loop in it was thrown over the vervain, and the other end fastened to the left great toe of a young virgin, who was then to drag at it till she had uprooted it. The eldest Druidess



then received it in a cloth, and carried it home, to use it for medicinal purposes and offerings to their gods.

After Druidism had long been forgotten, vervain was still considered as full of healing virtues, and it always stood first among the herbs used by the old women who used to be the only doctors.

The verbenas have a four-cleft corolla, and sometimes two, sometimes four stamens, so that botanists have not been well decided whether to arrange them in class two, or class fourteen, which consists of the labiate flowers. Sage, with its two branching stamens, is in the same doubt, and so is the little marsh-butterwort, a beautiful summer flower, with a deep-blue blossom, growing on a single stem, two stamens, a long spur behind, and very light-green leaves lying close to the ground.

The gipsy-wort, with leaves like a nettle, and whorls of white flowers, growing in wet woods; and the enchanter's night-shade, a beautiful little delicate plant with heart-shaped leaves, a stem red at the tip, and white flowers, are both of this class. I wish I knew why the last is called by that weird-like name.

The ash-tree is of class two, and so is the whole pretty tribe of veronica, tiny plants, with a corolla always four-cleft, with two divisions equal, and of the other two, one much larger than the other. Their English name is speedwell, and a very pretty name it is, for such bright cheerful wayside flowers as they are, peeping out with their blue eyes under the dusty hedge to smile on the tired traveller, and give him a cheerful greeting to speed him well on his way. The largest English kind, the germander speedwell, is of the most lovely azure that I know in any flower. The

common speedwell, with a small pale flower, is a very troublesome weed in gardens; the water-speedwell, or brooklime, with a flat fleshy stem, has a very pretty blue flower, and is no doubt known to water-cress gatherers. The leaves of all, except the two water kinds, are cut like the edge of a saw, and covered with small white hairs. The capsule, or seed-vessel, is very prettily shaped, just like a heart, with a rib in the middle, dividing it into two halves. There are a great many English sorts, and many more foreign ones, some of which are cultivated in gardens. The Latin name, *veronica*, means true image. I do not know why it was given to this little flower, but I like to think that it was thus intended to put us in mind that the true image of the greatness and goodness of God may be seen reflected in the marvellous structure of even so lowly a work as a little blue speedwell.

And lastly, one word of the funny duckweed, a green veil over the black water of the pond, with no roots at all, only one little fibre hanging down below the leaf, to drink the water; and as for flower it has none, but it keeps its two stamens and one pistil in its pocket.

Yes, really in a little pocket on one side of the leaf, where, if you look very sharp, you may just see the two tiny anthers peeping out, as the eyes of the young kangaroos do out of their mother's pouch. Now look over all class two, and try to make acquaintance with them all this summer.

## CHAPTER XIV.

## CLASS III.—SPEARS AND FLAGS.

CLASS the third includes a large and beautiful army, each bearing aloft a tall sharp spear, and often a most exquisite crest or plume, and a long narrow tapering streamer, like the pennoncel of a knight at a tournament. These fairy lances spread through the length and breadth of every country; there is nothing so frequent as, and nothing more pleasant to the eye than, a whole array of them in a fair field, waving their crests and streamers, and covering the ground so closely that scarce any colour is visible, except their own fresh green fairy uniform. They are of all sizes; some tiny and bending to the tread; some, and chiefly the bands which guard the river's brink, tall, firm, and solid; and these, the frontier troops, have among them swordsmen bearing beauteous standards, more lovely and richer in tint than ever was banner of silk, woven and embroidered by the hands of a fair lady, to lead an army in a glorious cause.

When France was true and loyal, and her sovereign gloried in the title of "Most Christian King," her banner was the same at that of these green hosts; and St. Louis led his crusade beneath the waving fleur-de-lys, and wore it marked on his robe and on his shield, seeing in its threefold formation an emblem of the highest mystery of the Christian faith.

I cannot say that it was well represented in those days; and the thing with three points carved in stone, or represented in gold on a blue ground, which we call

the "fleur-de-lys," though graceful and beautiful in form, and recalling many a bright memory of old faith and loyalty, is a very poor likeness of the lovely iris, or flag-flower, so poor, indeed, that we could hardly guess it was intended for the same.

The very name of fleur-de-lys is a mistake, as modern botanists have settled it, for it means lily-flower; and the iris in no respect resembles the lily, which we shall find in the sixth class instead of the third.

Iris, the botanical name of the flag, or fleur-de-lys, means the eye of heaven, and was given by the Greeks and Romans to the rainbow, which they thought the path of the beautiful messenger of the gods. They were not so far wrong in this: or perhaps they had some dim tradition that the lovely bow in the cloud is really a messenger of mercy to us from heaven.

The name was given to the flower from its varied tints, blending into each other as the colours do in the rainbow. Purple, blue, and yellow, of all shades, are to be found in these noble flowers, and of such depth and richness, that no colouring equals them.

We have two English kinds of iris; the yellow one, which grows by the river side, and which perhaps you know by the name of the yellow flag; and the stinking flag, a delicate purple one, with a very disagreeable smell, which grows in hedges, and ornaments them in autumn with its splendid scarlet fruit. The great deep-purple iris, in gardens, comes from Syria; the little red-purple one from Persia. It was introduced by Queen Henrietta Maria, who was very fond of flowers; and the blue and yellow sort, with the very narrow leaves, which we commonly call the fleur-de-lys, is from Hungary.

When the irises come into blossom, you will see their stem coming curiously out from an opening in the edge of their broad, and, for the most part, sword-shaped leaves, and bearing a thick sheath packed up in the same hard straight leaves, containing one or two buds, which, like those of the daffodil, are enclosed in a thin transparent skin, like silver paper, which peels off as the blossom unfolds. I dare say you would be puzzled at the appearance of the flower; it stands very upright, on a green fleshy stem, and seems to consist of nothing but nine petals, in threes; three broad beautiful ones, turning over and hanging down, with an exquisite pattern in blue or yellow, or shades of both, wonderfully blended together; three little plain ones, between these larger ones, standing up, rather pertly; and three more middle sized, of a lighter colour, and with a ridge down the middle, shutting down like a lid on the inner side of the large ones. Where are all the stamens and pistils? We must make a few researches. Suppose we see what is so carefully nursed under that lid. Take hold of it gently by that pretty jagged fringed edge which makes a canopy over its door-way, lift it up, and peep under it. How beautiful! It is like looking into a little house, and such a house as it is, with such marblings and paintings of streaks of black, or deep blue, or rich yellow! And all along the middle of the great outer petal, it is a wonderful crest, or rather mane, of beautiful little soft thick hairs, forming a downy bed, exactly fitting the shape of the long, narrow, stiff inhabitant of this lovely little dwelling. I dare say you have recognized this beautifully lodged gentleman to be a stamen, with a very long anther, and his two brothers live in the other two dwelling-places near at hand. It is very curious that they should thus

lodge apart, instead of being sociably together like the stamens of every other flower I know. Now, where is the pistil? Is it not to be found? Look beneath the flower, at the stem. This swelling part, regularly divided into three ridges, is the germ; the slender part on which the corolla rests, is the style; and the stigma—Why! the stigma is what we have been calling the middle-sized petals, the lids of the little box containing the stamens. Certainly the iris is as wonderful a flower as it is beautiful. It is all, as you see, in threes; three large petals, three small, three stamens, three divisions of the stigma, three of the germ, and there will be three seed-vessels, and three seeds in each vessel. Last summer, I found the iris stamen-houses turned to a purpose I did not expect. They were the very larder whither the spider invited the fly. In a large white iris, a green vagabond spider, of the size and colour of a green pea, had his dwelling. There, for a full week, we watched him, lying in wait in the middle of the flower, and storing his victims in its divisions. There were slain and devoured in one week, a dumbledore, two bees, and flies beyond reckoning, first caught, then kept awhile in the yellow and white larder, their juices sucked, and at last thrown down to make way for a fresh prisoner. The flower faded in time, and the spider disappeared, having taught us a new use for the iris blossom.

The roots of some irises are bulbous, others are creeping, especially those that grow near the water. One kind, called orris root, is used for a perfume. The gladiolus, little sword, or corn-flag, is in some points like the iris; it is a most beautiful flower, but only one sort is very common in gardens here; this is the pink kind, which ornaments the corn-fields of Italy.

Having done with the flags, let us begin upon the armies marshalled beneath them—I mean those precious gifts, the grasses, perhaps the most valuable of the whole of the vegetable creation, the food of man and beast. You are surprised now, for you never thought of eating grass; you never heard of any one who did, excepting Nebuchadnezzar, in the time of his punishment. But what shall you think when I tell you, that without grasses you would have neither bread, beer, gruel, porridge, rice, nor sugar, to say nothing of the mutton and beef, the milk, butter, and cheese, which are supplied to us by animals which live on grasses?

I will give you a description which applies to every kind of grass. The root is creeping, the stem smooth, round, hollow, and jointed, the lower part consisting of leaves, long, narrow, undivided leaves, rolled up, and sheathed one over the other. At each joint one of these leaves ceases to embrace the others, and hangs down, tapering off to a point, while the one next above it becomes the outside covering, and so continues till the next joint, where it, too, opens and hangs down on the opposite side to the former one. Each joint contains a certain quantity of sweet sugary juice. The stem, properly so called, springs from within the last leaf, and supports the blossom, which grows in a head, tuft, or spike, containing a number of small flowers. Each flower has of its own, two scales, by way of corolla and calyx, one over the other, and the outer one ending in a sharp point or bristle; and these, by the assistance of the scales of the next flower, enclose a soft, pulpy, sweet germ, bearing two tiny styles, and three stamens, with very long weak filaments, which hang their anthers out far beyond the flower.

If you think about it, you will see then that wheat

is really a large kind of grass. The spike of blossom is the ear, and in July you may see the anthers hanging out, and a beautiful shape they are—much prettier than any other anthers I know. Though there is much to say, and little space to say it in, it would be unthankful not to dwell for a little while on the beauty and precious thoughts belonging “to seed-time and to harvest-tide.”

The seed is cast forth for the soil to foster, even as our hearts are bidden to foster that more precious seed; and then, if it falls into good ground, it puts forth its green blades, that seem at first to be like a thin veil over the dark-brown earth, which then thicken and spread in their well-ordered rows, till the whole field bears that loveliest of all hues, the green of young wheat in spring. Taller and taller grow the spikes, sheath and pennon rise, joint above joint, till thick and high they stand; so high, that a little child’s head is quite lost between the ranks on either side the field path, and it feels for a moment as if it was lost in a dense forest, and trots along in a fright to overtake its mother. The uppermost sheath swells and opens a long slit, within which is the tender green ear, shooting out daily higher and higher on the slender green stalk, and in time hardening its chaffy scales, and putting forth its anthers. This is the time of dread lest a hail-storm should break or bend the straw, and send the whole crop flat, so that it cannot blossom or ripen equally, and may be tied down by bind-weed. It is the time when we most feel that man may do his utmost, but God alone can give the increase.

But now the anthers have shed their pollen and fallen, their duty being done; the sweet pulpy germ is hardening, and turning to “the full corn in the ear,”



and over straw, and blade, and ear, a pale rich golden tint is gradually descending; the hill sides and valleys far away stand so thick with corn that they laugh and sing; the fields are truly white to the harvest, and the sunny waves of wind pass over them, as they bend softly and rise again.

Now comes the harvest, to which all the village, small and great, have been looking forward so long. Out they all turn, father and mother, great sons and daughters, to reap, and little ones to look after lesser; long paths and gaps open before them, and the beautiful clusters of sheaves appear on the stubble: the merry cry rings out when the last field is reaped—

“We have ploughed, we have sowed,  
We have reaped, we have mowed.”

And then some wild cheery shout to finish with. And then the carting, the loading, the wagons with the noble brown stacks heaped high—higher; the round mow, built up, and the builder rising higher in the air with every round of sheaves; and the last wagon with the horses with green boughs, coming late home, perhaps by the light of the round harvest moon:

“Our work is over, over now,  
The good man wipes his weary brow;  
The last long wain wends slow away,  
And we are free to sport and play.  
The night comes on when sets the sun,  
And labour ends when day is done.  
When summer ends, and autumn's come,  
We hold our jovial harvest home.”

And last of all the gleaning, or, as the gleaners generally call it, the leasing.

Beautiful things in themselves, beautiful in the thoughts they bring with them—the good seed—the seed sown in grief, which shall be brought again with

joy—the good man in his old age going down to his grave in peace, like a shock of corn in full season—and lastly, the great harvest day, when the cry shall be, “Put ye in the sickle to the corn,” and the reapers shall be the angels.

In the Holy Land, the harvest is much earlier than here; it comes about Easter, and this explains how it is that the feast of weeks, at Whitsuntide, should have been the festival of thanksgiving for the harvest. How beautiful the offering of the first-fruits was, when the Israelite brought his sheaf for the priest to wave before the Lord, acknowledging the mercy, by saying, “A Syrian ready to perish was my father, and he went down into Egypt and became a great nation!”

Did you ever see Egyptian wheat? I have some which sprung from seeds found within the case of a mummy, which must have been embalmed at least three thousand years ago. The form of it would make you understand the seven ears on one stalk in Pharaoh’s dream, for each ear is very wide, and spreads out into seven, nine, or eleven little points on each side, so as to be so many ears in one.

Next to wheat comes barley, John Barleycorn, “his head well armed with pointed spears,” which look beautiful and silvery in the summer sunshine, as the wind waves gently over the field. The spears are prolongations of the awn or bristle, which all grasses bear at the point of their calyx. It is sad to think that barley, that good gift of heaven, should sometimes be turned to such an evil use by men’s self-indulgence.

Oats bear their blossoms, not in ears, but in loose, graceful waving heads, the florets in pairs. Rye grows in cold, poor lands, unfit for wheat. These four are sometimes called Cerealia, after Ceres, whom the hea-

thens used to worship as the goddess of wheat. Rice is a kind of grass, which grows in the very hottest and wettest places it can find, chiefly in India and Carolina. It is sown under water, and trodden into the earth by asses or oxen. The blossom is a good deal like oats. It is the chief food of the natives of India, who can live upon such a small quantity, that the people of colder climates would soon starve on it.

These are the grasses whose grains are used by man for food. Then follow the multitudes, the leaves of which are eaten by animals. I am afraid it would be in vain to begin describing them, there are so many; but if you will only pay a little attention to them, you will see how endless is their beauty and variety. There is the quiver, or quaking grass, with its delicate purple-brown pendant tufts shaking in the wind, on their slightest of all stems; the tall oat-grass in the woods; the long ray grass, with which little girls sometimes practice a very silly kind of fortune-telling, which they had better leave off as soon as possible; the brome grass, with tufted scaly heads, in the upland hayfields; the cotton grass in bogs, with one stiff straight stem, and large tufts of silky cotton enveloping the seed, waving white, and shining in the marsh. It is said that it is used in Sweden to stuff pillows. I have seen a chimney-piece ornamented very prettily with a collection of different kinds of grasses, tufts, feathers, plumes, ears, and spikes, an infinite variety, all brown and dry, but preserving their form and beauty.

The hay-field—I could stop there as long as in the harvest-field; the sweet grass, the long ridges, the cocks, the busy sunny hay-makers, the horses munching away so happily, while the wagon is piled, the hay home—that is a time of times, indeed!

But we must make haste, for this has been a long chapter, and speak of the great grass which is valued for its juice. The sugar cane is a grass of twenty feet high, and the sugar is made from the juice at its joints. It is just as good sugar that you may suck out of the joints of almost any kind of English grass, only there is not so much of it. The bamboo, or cane, is another grass, with a much harder stem, sometimes fifty feet high, and proportionately thick, the leaves of huge size, and the whole plant of infinite use to the natives of tropical countries.

It is only in the tropics that grasses grow to such a size. In Brazil, the hay is seven or eight feet high, and the huge reeds and canes are as great forests to men, as our wheat fields are to babies; but grasses, small or large, are to be found in all parts of the world, excepting in the extremes of cold and of drought. The species in the southern temperate zone are much fewer than those in the northern, and very unlike them. The most noted of these far southern grasses, is the tussock grass, which almost entirely covers Terra-del-Fuego, and the Falkland Isles, and is said to be like little palm trees about four feet high.

Of all the lands where grass grows, there is, however, not one where it prospers so well, or is so fresh and green, as in England. Our climate is just moist enough for it; our sun fosters it, and makes it sweet and strong; and the dew and rain so freshen it, that it is seldom withered and dried up, like that "whereof the mower filleth not his hand, nor he that bindeth up the sheaves his bosom." And thus England is said by all who have seen her, to be the greenest of all lands. May the souls of her children only prosper equally in the dew of heavenly grace, since well do they know that of

their earthly part it has been said, "All flesh is grass, and all the goodness thereof as a flower of the field." "The grass withereth, the flower fadeth, because the Spirit of the Lord bloweth upon it. Surely the people is grass."

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## CHAPTER XV.

### CLASS IV.—FLOCKS OF FLOWERS.

PROCEEDING regularly, according to the classes, we next come to some which might be taken for compound flowers, if we did not know that these have five stamens united at the anthers, and none which do not fulfil this condition can be reckoned in that class, which is the nineteenth.

The fourth class consists for the most part of aggregate flowers, so called from the Latin word *grex*, a flock, because they are all gathered and sheltered within the same calyx, like a flock of sheep within the same fold.

You may best make acquaintance with these little flocks in the scabious—which haunts the upland pastures, hedgerows, and heathy woods. There are thirty-four species of scabious, but only three which come much in our way—two in the heaths and woods, and one in the garden.

The larger English scabious is a tall straggling plant, growing in ill-kept hedges, wild rough ground, and barren pastures. The leaves are of a pale colour, covered with short rough hairs, and variously cut, more or less deeply, and the stems are long and irregularly branched, the blossoms are of a pale, cloudy blue,

almost grey; the calyx consists of a number of long narrow leaflets lapping one over the other, but each flower within has its own proper calyx, consisting of little hard sharp chaffy points growing out of the germ. The germs are hard four-sided wedges, the points of which are all packed together beneath, while the upper spreading parts bear the four stamens. The anthers are the prettiest part of the flower, being of a bright blue, a very uncommon colour in anthers, which, as you may have observed, are almost always of some shade of yellow. The corolla is of one petal, irregularly cut, and sometimes in four, sometimes in five divisions. The outermost of the flowers seem to make it their business to guard the rest, and therefore wear much larger corollas, so that the whole head of flowers sometimes has the appearance of one of those pretty round, garlanded, shepherdess-hats that one sees in old picture-books; but in general it is an awkward, untidy, irregular-looking plant, not nearly so pretty as the other English kind, the meadow scabious.

This is much smaller, and when its flock are all lambs, it is uncommonly pretty, the little buds being all hard and round, and sitting so close together that they give the notion of being well packed and comfortable. It is very pretty when in full blossom too, with its dark blue corollas, all alike, and all regular and well cut, and seen through a whole forest of pretty anthers, sometimes blue, sometimes pink, and of the white pin-like stigmas.

The garden kind is the handsomest of all, but it requires to be well tied up and trimmed, for it is a straggling, unruly, scrambling plant. The flowers are of the richest deep dark red purple, the larger ones forming an ornamental trimming round the border,

and the inner ones being almost black, which, with their white stigmas, has caused them to be called, in cottage gardens, by the name of widows. I have sometimes wondered that little girls, who are ingenious with their needles, do not try to make velvet pin-cushions in imitation of these flowers, with pins for the stigmas, though, to be sure, they would produce anything but a flattering resemblance of the flower, so perhaps they had better let it alone.

When the blossom of the scabious is over, it is easy to see the little wedges of germs, still with their sharp prickly whiskers of calyx, all rising up together in a sort of mountain, holding at first tight, then more loosely, to each other, as if loath to part from the loving fellowship in which they have flourished together, and worn together their rich and sober array; and not parting till rain, frost, or wind finally rend them asunder, and send them each to be the founder of a fresh colony of scabious. Nobody exactly knows whence this kind of scabious came; it has been growing in English gardens for the last two hundred years, but whence it was brought is not certain.

The next aggregate flower is a bold fierce fellow, one of the tallest, strongest, and sharpest of the dwellers in our hedges, the teasel, namely. How prickly it is, only second in sharpness to the thistle, wearing a hedge of thorns in every possible place where there is room for them. The whole of the firm hard hollow stem is scattered with little hooks, bent downwards; the chief ribs of the leaves have prickles all along their under side; the long narrow leaflets of the common calyx are perfect ranks of pricks beneath; and as to the great head itself, it is a very porcupine, for each little lilac flower dwells at the very bottom of a deep

calyx. furnished with two hard, sharp, strong spikes, like a warrior's spears set up before his tent. Not only are these spikes sharpened at the point, but the whole length is jagged with little hooked teeth, and so hard and tough is the substance, that long after the blossom has faded, all through autumn and winter you may see the brown stem and bristly head standing boldly up, facing all the storms of snow and rain, and not lost sight of till summer comes again.

Indeed, from its long endurance in this condition, we generally think of a teazel as this hard, dry, bleached object, instead of the beautiful creature it is in its prime, in the middle of July, when the calyx spines are in their full glory of green freshness, and the principal head standing up in its grandeur, with the little attendant ones on either side, looking like a monarch wearing his crown; for the flowers do not all blossom at once, but come out in bands or circlets round the conical head, so as to resemble a garland bound round it. Truly the teazel thus crowned is a noble warrior of the way-side. And he is to be admired, too, for his patient endurance in firmness and strength long after his brightest days are past.

The leaves of the teazel are curious; they are what is called sessile, sitting on the stem, that is to say, without leaf-stalks. They grow in pairs, and the lower ones meet quite together and join at the bottom, forming but one leaf round the stem, and making a deep cup, which after rain is often to be found filled with water; indeed, I have seen this pretty green pond well filled, even in the midst of a dry summer, so as to keep the leaves strong, healthy, and fresh, as long as they are required to draw in air for the growing seed.

The teazel is of importance to the making of cloth,



for the little delicate yet firm hooks are better than anything that man, with all his machinery, has ever been able to devise for raising the nap without tearing the cloth itself. For this purpose large fields of teazels are grown in the manufacturing counties, their heads are cut off and fixed in a frame, well sorted according to their sizes, and the cloth being damped and spread out on a table, they are drawn across it, and the little claws just raise the threads sufficiently to give the soft woolliness of effect. So much did the cloth-makers of old value the teazel, that three teazel heads are the arms of the Clothiers' Company.

Another aggregate flower is the plantain or ribgrass, the prettiest kind of which is the ribwort plantain, better known to country children by the name of knock-heads. You see the reason of the name of ribwort in the broad ribs of the leaves, with their purplish pink stems; and oh! the toughness of the stalks, so much easier to pull up from the root than to break.

The head of blossom is very pretty; the little calyxes as black as jet, and very hard and lasting; the corollas very small and brown, and coming out like the teazel, in bands, instead of all at once; the anthers cream-coloured, and the filaments very long, so that when in blossom the black head wears a most beautiful and graceful wreath of white dancing pearls or studs, I hardly know which to call them.

I daresay you have often twisted and knocked the heads together to try which has the strongest stalk, but I wonder whether you know how to make a knock-head basket? Gather a good many of the longest and strongest you can find, pull off their pretty black heads, crowns, and all, then take the stoutest of all, and give it to some small brother or sister to hold at full length

for you. Then take one of the others, bend it in the middle, and give it one twist round the first. Oh, but we want another pair of hands, some other little person must come and hold the ends. Hold them tight while you twist another knock-head in the same way, and add the ends to the former one; then another, and another; hold fast and be patient, little helpers, till some twenty or five-and-twenty have been put on, twisted in the middle, and the ends held in two bundles. Now get some string, tie one set of ends together, now tie the other, cut them even, then release the little ones who had been holding the first stalk so patiently, and tie the ends of that together as neatly as you can for the handle, and now you have a knock-head basket. It will not stand, to be sure, for it has only a ridge at the bottom, and it will only last a day, but it will do very nicely to please the little ones and hold daisies; and if you are as happy making them as I have been, you will not be much to be pitied.

Here is the hoary plantain, with leaves growing in a neat compact form close to the ground, tall stems with white cottony coats and long heads, which have pretty pale pink filaments and white anthers; there is also the buckshorn plantain, or star of the earth, so called from its branching leaves, which spread out like a star in very dry pastures. And the greater plantain, with very long heads and pink stamens, growing in the hedges of fields, and in the sides of cart-tracks, is well known to all keepers of caged birds; for the chirp and hop with which the canary or bullfinch receives it, is a sufficient reward for all the pain the tough stem may give the fingers that uproot it.

The burnet is another aggregate flower, the blossoms of which come out a few at a time, on its round green

head, and are of a beautiful deep crimson. It used to be valued for the food of cattle, and though it is now little regarded, it is often to be found in grass fields.

And beautiful, most beautiful, among garden shrubs is the budlea, with its little orange-coloured balls, delightful to the eye and delightful to the smell. O, the beautiful garden where I remember them, with its sloping green bank, and the ragged fir-trees opening to show the church tower, and the arm of the sea which could just be seen through the trees, with the little white-sailed boats tacking about on it; and the gum-cistus raining down its frail leaves in the middle of the grass-plot, where we used to blow our soap-bubbles, and try to make them sail away over the house; and the blue sky and bright sun; and the orange balls of the budleas hanging high up and contrasting with the blue of the sky. You will say the budlea has little to do with all this, but it was there that I first knew and first loved those bright little orange marbles, and the very sight of them always brings back in a moment the sights and sounds of that pleasant place. I daresay it is a beautiful sight in its own home on the skirts of the Andes in Chili, from whence it was brought to England about the year 1774.

Besides these pretty flocks of flowers, the fourth class contains a set called crossworts, with all their parts divided in fours; a stem in an exact square, leaves at regular intervals, growing in twice fours, a calyx in four divisions, a corolla likewise in fours—four stamens, half four cells to the germ, and four seeds.

The largest of these crossworts is the sweet wood-ruff, with its pretty white stars of flowers, and the leaves that remain sweet so long after they are gathered. It has many relations, with very small flowers,

and a profusion of them; the white and yellow ladies'-bed-straw, which you may find in quantities along the lanes in the latter part of the summer; and there is a pretty lilac sort somewhat larger, which grows in gardens, whither it has been brought from Persia, and which is apt to grow and spread much too fast.

There is also the cliders, or goose-grass, which everybody knows, and everybody dreads, so thickly are its long, weak, trailing stems, its narrow leaves and round seed-vessels, stuck with little tiny hooks, which, when once they have a hold, seem as if they would never loose it again, and when you pull them off in one place, catch hold in another.

Woe to the silk fringes which venture into a hedge with cliders, for the little round balls roll themselves in so tight, that fringe and all must come away to get them out; and even our spaniel's long silky ears often come home so thickly stuck and knotted with them, that much pulling and tugging from us, and many a little remonstrating squeak on his part, come to pass before they look as they ought to do, like his own beautiful flowing locks.

Cliders have a very minute white flower; I believe the proper name is cleavers, because they cleave so fast. They are very good food for young turkeys when chopped up with chives and egg; indeed, in former days great virtues were attributed to them, especially the cure of the ear-ache, and of the bites of vipers and *spiders*. If ever a spider bites you, pray try to cure it with cliders. My old botany-book also says, that Dioscorides observes that the shepherds make use of it to strain their milk through. I wish Dioscorides had also told us how they managed to do so.

The holly also belongs to the fourth class, and so do

a few other plants, but none of any note. The pretty ladies'-mantle, with a green blossom and an elegant leaf, something the shape of a mallow, is the only one you are likely to notice, unless you go much deeper into botany than these chapters can take you.

There is a beautiful foreign tribe called the Protea, growing in Africa and South America, with wonderful leaves and magnificent blossoms. They are sometimes to be seen here in hot-houses, but as I never made acquaintance with them, I will say nothing about them, except that if ever you come in their way, you will be more surprised than by anything you have seen yet in the way of flowers.

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## CHAPTER XVI.

### CLASS V.—MORE PENTAGON FLOWERS.

LAST year we disposed of a good many of the fifth class among the pentagon flowers, but still there remain several more which I hardly like to pass over without notice, even at the risk of making this more of a catalogue of flowers than an account of them. They are so plentiful, and so beautiful, that what to one child may be only a name in print, will to another recall some graceful, fresh, lovely thing, that has gladdened her eyes every summer, and been the pride of her nose-gays during its reign, but of which she has never known the real name.

First stands that tall, dignified plant, the viper's bugloss, at least in its perfection it is one of the most magnificent of wild flowers, though it varies extremely in size. On a loose gravelly soil, such as suits it, it

grows to a great height. I have pulled up one piece, which, from the crown of its purple head to the extreme point of its jetty black, straight, tapering root, measured more than a yard and a half, whereas in a poor starved ground, where it has either too much or too little water, it dwindles to be scarcely three inches high, and is hardly to be recognised as the same plant.

It is named both in Latin and English from a viper, because of its numerous stings, or rather bristles. They grow white and hoary, all over its alternate leaves, and dark red and sharp they stud the pale-green stem; they fringe the calyx, and guard the whole person of this monarch of the waste from head to foot.

I call the viper's bugloss a monarch, because it is so royally robed. See the beautiful deep blue of the full-blown flowers, the purple tinge of those which have just opened, and, more exquisite than all, the bright red of the bud which is slowly rising from its bristling case, and preparing to unfold itself to-morrow. And these fine colours are brought into close contrast, for see, the grand spike bears its blossoms on little side-stems, each closely set with a double row of buds, and curling downwards and inwards towards the point. The flowers nearest to the main stem blossom first; then, as they wither, the spikelet straightens as those further back expand, and thus, unlike most spiked plants, where the lower blossoms come out first, and fade before the upper ones are blown, the whole length of the tall head is at once arrayed in blue flowers and crimson buds, the blue set off to still greater advantage by the five long crimson stamens within.

There are several others of these coarse prickly-stemmed plants, with curling spikes of blossom, and for the most part with blue flowers, with a tendency

to turn red. The anchusa, or alkanet, the borage with black stamens, the lungwort with spotted leaves, often found in cottage gardens, and the comfrey, are of these. The wild comfrey, growing by the river bank, with large rough leaves and bell-shaped flowers, blossoming in pairs, and with five curious scales closing the throat of the corolla, is of all shades, between deep red, purple, and yellowish white; you can hardly find two plants bearing exactly the same tint; but that fine, tall, bushy plant, the prickly comfrey, which grows in gardens, has blossoms which are pink in the bud, and blue when unfolded.

The hound's-tongue, so called from the form of its leaves, has small dark-red blossoms, very pretty, but the whole plant, which grows by the way-side, generally wears a thick coat of dust, and it has a peculiar smell, which probably led to its being once used in medicine.

The henbane, poisonous to those who eat it unguardedly, is very valuable as medicine when properly prepared. It is not very often seen growing, but when it is found, it is usually on waste land, by road-sides. It grows close to the ground, with pale, woolly, clammy leaves, an unpleasant smell, and a handsome, but venomous-looking, flower, of pale cream-colour, covered with a network of purple lines, and with a deep, dark-purple throat. If you find any, keep the little ones from touching it, but don't pull it up, for it is so rare, that botanists think a specimen a great prize, and lament if they find it gone from the spot where it once was known.

Even more rare than the henbane, and still more poisonous, is the dwale, or deadly nightshade, which has its Latin name *Atropa* from one of the three Fates,

who, as the ancient Greeks believed, spun the thread of human life. Atropos, the one from whom this deadly plant is named, was the third, who held the shears which cut off the thread when it had come to its full length.

Every now and then we hear of some poor little child who has been so carelessly watched as to be allowed to eat the dark-purple berries of the nightshade, which have a sweetish taste, and thus tempt it on to its own destruction, for one alone is sufficient to produce a fatal stupor and heaviness, which are almost sure to end in death.

Poison-fruits seem to be placed in this world in order to put us in mind of temptation and sin, which allure us at first, and then destroy us. We may almost feel sure that the earth brought forth no poison before sin had entered into the world, and death by sin.

Do you observe, too, that the birds and other animals never poison themselves with wild fruits, it is only children that ever do so. This is because God has given the creatures instinct which guards them from even desiring what would hurt them, whereas He has given us reason to conquer our desires when they would lead us to our own injury. I believe, too, that no child, who has not a habit of pampering its taste and craving after things, not because it is hungry, but only because it is greedy, will ever be in much danger of being tempted by these wild, unwholesome-looking fruits.

The dwale is very uncommon. I have only once seen a plant of it. It was growing on an old bridge; it was very tall and branching, reaching some way above the parapet, with a quantity of light green downy leaves, and a profusion of dark, dull, reddish-purple,



bell-shaped blossoms, such a plant as no one could ever mistake after having once met with a description of it.

This is the real deadly nightshade, a different plant from the woody nightshade, which is much more common and less dangerous. This last has shining red berries, drooping, and of a very pretty form. They would make you very sick and giddy for some days if you were to eat them, but would probably not kill you, unless you were very weakly. It grows on heaps of rubbish, and by way-sides. It is a small plant, with heart-shaped leaves, and very pretty flowers, the corolla purple, and what is called deflected, or turned back, so that the yellow stamens, which are all gathered together in one, with the pistil like a point, in the middle projecting forwards, like the boss on an ancient shield, while the corolla and calyx lavish all their care upon the germ behind them. The garden nightshade is almost exactly like it, but the flower is white, and the berries purple.

There are several other plants formed like the woody nightshade. There is the pretty American cowslip, with its trim, fair lilac blossoms, nodding round its slender stem, not very like a cowslip, to be sure; but as it grows in its own country, in the long grass, and blows in early spring, I suppose it put the first settlers in Canada in mind of the yellow cowslips they had left at home; and when their children trotted up to their log huts, with hands full of these pretty flowers, as their own used to be of the cowslips in their own native village, they liked to call them by the same friendly old name, bringing back, perhaps, the remembrance of playfellows who had been cowslip-gatherers with them in the old country.

Another plant with lilac deflected corolla and projecting yellow stamens, was imported from America three hundred years ago, by an English knight. It has fibrous roots, with tubers at the knots; large, compound, wrinkled leaves; and the fruit is a dark-purplish berry.

This knight planted these curiosities on his estate in Ireland, and there left them, telling his servants that they would be very good food. In due time they budded, the lilac flowers opened and faded, and the green berries became dark. The servants tasted them, and soon found them both nauseous and unwholesome, so they dug up the roots and threw them away; but when the master returned, he made inquiry for them, searched, and found some still alive, which he caused to be planted, explaining that it was the root instead of the fruit that was good to eat.

And so it proved, the root was found to be excellent, the culture was improved, and care made the plant grow better and produce more and larger tubers, till at last this American root became the chief food of the inhabitants of Ireland, and few persons in England like to make a dinner without it. The French call this excellent root the apple of the earth; we give it a name something like the Indian word it was called by when first brought from South America, and what that is I am sure you have guessed by this time, as well as who was the knight who brought it home.

The reason why the berries of the potatoe are unwholesome is, that they partake of the nature of the *Solanum*, or woody nightshade, the whole of which race are more or less poisonous. You know that very little use is made of the potatoe berry, even for seed. It is only now and then sown, when people wish to pro-

duce some new variety; and the plant is propagated from what is called the eye, the little black spots which we see in the tubers, or, as we are more used to calling them, the potatoes. I believe that in fact what we eat are not roots at all, the roots being only the long stringy net-work of fibres that go so deep into the ground, and that the tuber is really a sort of underground stem, protecting, in a fleshy nest, the young buds which are to bear leaves and blossoms in the next year. The eye, then, is the bud, which, when planted, with a sufficient quantity of the tuber to afford it nourishment through the winter, will grow, and in the summer put forth leaves above and fibres beneath, which will in due time form more tubers. Thus you see that Providence has provided food for us, at the same time as for the plentiful increase of the plant.

Potatoe grounds are a very pretty country sight, with their regular ridge and furrow, and the long ranks of plants growing so evenly, with their rich green bending foliage, and the white or lilac flowers hanging four or five together on their slender stems; indeed, the flower is in itself so pretty, that I think the plant would be grown for its beauty, even if it was of no use.

Autumn, too, brings a very pleasant sight, when the stout men and boys go to work, digging deep in the ridges, which stand up so neat and trim before them, while behind all is trodden down flat; and their prongs and forks bring up a whole net of fibres, with the brown lumps hanging among them; and there are the women behind with great gloves and knives, or spuds, clearing off the fibres, throwing away the old dry haulm, and scraping off the rich brown earth, then, as the potatoes come out, tumbling them into the sack

or barrow, to be wheeled off to the winter's store, often a droll little thatched burrow in the field. Funny things are those potatoes, brown, yellow, or red, and of such comical shapes, especially pigs' potatoes, like strings of beads, and now and then in clusters almost like a little man with a little round head, and two legs. They have odd names, too, according to the varieties, which are very different according to the soil. Some places are so much less favourable to their goodness than others, that the best potatoes degenerate in them after the first year, and the seed (the eye, that is to say,) has continually to be renewed from the more suitable soil. Thus London is supplied with potatoes grown in Yorkshire, and of which the seed is brought every year from Scotland. Some parts of Cornwall, and the Channel Isles, are also regions where the potatoe thrives, and is better than elsewhere.

Ireland is, however, its great home, and it is only within the last hundred years that the cultivation has spread so universally in England. It had so become the poor man's food that it is hard to think how people lived without it; and for many years it seemed the most certain of all crops; but some years ago, as almost the youngest reader can remember, came a warning that our own skill, labour, and foresight, can never secure us from famine, and that it is God alone who can give or withhold our daily food.

The tall flourishing green haulm of the potatoes, which had been finer than ever that year, began to shrivel and turn black, a sickly unwholesome smell spread over the gardens, and in a few weeks every plant was but brown withered stalks; then the mischief spread to the roots, and the whole promise of the year was turned to blight and decay. There was

scarcely a cottage that did not suffer more or less, or where the children did not leave their dinner scarcely satisfied; and in poor Ireland, there was starvation and misery such as, thank heaven, we never saw, and can scarcely conceive.

Then came the Fast Day, which bade us mourn for the sins which had brought wrath upon us, and pray that God would again bless our basket and our store; and then in His mercy we received an abundant harvest of corn, while the potatoes, though not free from disease, were far more healthy than in the past year. Then, did we remember to give thanks with our whole hearts? And have we since remembered the resolutions we made in the time of our fear and distress?

Since that first year, though the potatoes have never been quite free from disease, they have not been so much touched as at first; and, besides the training in giving up to others, and denying ourselves, which doubtless the year of distress brought to some, it taught prudent people not to rely so entirely on it as a certain crop, but to grow other things that may be used in case the potatoe should fail.

Besides these, we have the tall yellow loose strife, with its shining yellow spikes, by the river side; and its pretty trailing brother, the moneywort, with leaves in pairs, and polished yellow blossoms, creeping on the moist hedge-bank in long wreaths, which are ready-made garlands for little girls' heads; and a third kind, the yellow pimpernel, with thin leaves, and bright golden stars of blossom. Then comes the true pimpernel, the shepherd's weather-glass. Bright little thing, one of the three scarlet flowers of sober England, does not everyone know it, and like it, even though we must call it a weed? Surely it may grow under currant bushes,

and among cabbages without offence, though it must be turned out of our flower-beds. Its Latin name, *Anagallis*, means laughing, and certainly it does laugh in the sunshine, which it loves so much that it shuts up its leaves not only in the evening on cloudy days, but when there is rain in the air—little weather-wise thing. Its blossoms are on long slender stems, and its round urns of capsules turn down to the earth to ripen the fruit. The stamens are covered with a beautiful soft down, and the leaves grow in pairs. Sometimes you may find a pimpernel exactly like this in everything except that the corolla is of a rich deep blue. We had one single plant in our kitchen-garden some ten or twelve years ago, which we thought a great prize. Now its descendants have spread all over that part of the garden, and sometimes, from the pollen of the scarlet and blue getting mixed, as I suppose, there come up pale lilac pimpernels, not so pretty, but curious. A third kind of these laughing flowers, is found in wet places, the delicate bog pimpernel, white, striped with pink, growing in long trailing wreaths, with little round leaves in pairs. A large handsome sort, very rich blue, looking like my own blue pimpernel magnified, is grown in gardens, by its company name of *Anagallis*.

The downy stamens are found again in the mullein tribe, very woolly plants in general, leaves and all so covered with down, that they are sometimes called poor man's flannel, and the yellow blossoms in tall single spikes. The great white mullein has leaves nearly white with down, white furry stamens and red anthers; the black mullein is likewise yellow flowered, but the down on the filaments is purple; the moth mullein is the prettiest of all, with yellow butterfly-like blossoms on a loose spike. It is often found in gardens, sometimes, though rarely, wild.

## CHAPTER XVII.

## CLASS V.—CURRANTS AND CLIMBERS.

I HOPE you are not tired of pentagon flowers, for we are not by any means at the end of them. The pentagon or cinquefoil, is the most graceful of mathematical figures, and that which looks most beautiful in architecture, as we see it so often in the tracery of the heads of church windows; and thus it seems, as if Nature had adopted it, as the most ordinary, and, as it were, standard form of those of her productions, which, above all others, unite regularity of shape with beauty of colouring.

See, as an especial instance of this union, that exquisite garden-flower, the Phlox Drummondii, with its shape as regular as the periwinkle, and its markings varying in width and in tint, from narrow borders to wide streaks, from pale delicate pink to the deepest crimson “freaked with jet,” yet never failing in all their varieties to keep to that one principle of the regular five-sided figure. It is a hardy flower, and will, no doubt, soon be more common than it is as yet, for it was only in 1838 that it was first grown in England, from seeds brought from Texas, by Mr. Drummond, from whom it is named. Or, look at the regular pentagons of the *Gilia tricolour*, its yellow throat, trimmed with a clear, distinct, dark-brown line, and its grey shaded corolla, all its divisions so equal and distinct in form and colour.

These all have divided corollas, like the primrose and periwinkle; others have equally regular pentagonal corollas like the campanula, but undivided, only marked at the angles by a sort of groove or fold. The largest of these is the great datura or thorn apple, with its bell-like white blossom; and its hot-house companion, the deep orange-coloured datura. The prettiest and best known are the convolvuli or bindweed. These beautiful flowers spread nearly all over the world, and the English kinds, as usual, are as graceful and elegant, though less showy than their foreign cousins.

Of all the fair things in the world, what is more lovely than our great white bindweed, its twining wreaths of heart-shaped leaves and delicate white flowers, their buds so gracefully rolled and folded in that tapering form? Nothing gives a greater sense of purity than those stainless flowers, in the midst of their green bowers, looking as if it was a sort of cruelty to touch or injure anything so exquisitely beautiful and delicate, that a breath will almost soil it, and if gathered, in a few moments it is a melancholy, crushed, faded thing. It is like the driven snow, too pure to bear the taint of man's touch.

The little pink bindweed is one of our prettiest flowers; the five deep lines that mark its divisions almost always white, while the space between them blushes to every shade of pink, according to the place in which it grows; if in the sunshine, it is almost white; if in the shade, the colour is bright and deep; always beautiful, however, with its twining spiring stems. It is a pity that, beautiful as it is, it must, like other good things, when they get into unfit places, be often considered as a weed, and rooted up. We cannot suffer it to creep about our neat paths, or fetter our



choice plants, any more than we can or ought to allow our healthful play to take up the time that ought to be spent on our useful employments.

Equally frail, and still prettier, is the flower which the French call "the beauty of the day," and we the *Convolvulus minor*, that blue, white, and yellow bell, blossoming in the morning, and fading by sunset, closing up too, on cloudy days, as if it felt the change to our grey sky, from its own sunny clime on the Mediterranean shores. It grows near the ground, and does not climb, as does our other common garden *Convolvulus*, the major, which delights to twist about a trellis-work, or wind round a pole. It is an East-Indian plant, and therefore requires care; but in its native home its flowers can be open but a very short time, for they cannot even bear the heat of our own July sun. The most curious and beautiful quality of this species is, that the same plant bears blossoms of every variety of colour; some deep intense violet, with red veins; others pink, or purple, veined with white; others again quite white, with the divisions purple.

Many, and many more, are the kinds scattered over other countries, growing to great size and beauty in the tropical lands, where the humming-bird glances among their bells, and the tailor-bird sews their leaves together with long flakes of cotton, to shield the nest containing its tiny eggs; some few have been brought to England, but none except the splendid Mexican *Ipomea*, and the black-eyed *Thunbergia*, are much known.

Closely related to the bindweeds, is a very strange plant, which you may find on the common, the dodder. Do you know it? Queer, red, stringy thing! creeping about on the furze and heath, binding them down by a close, hard network of its fibres, without root, without

leaf, only with these twisting stems, bearing white blossoms in little round balls, like some of the aggregate flowers of the fourth class. If you can find it, you will be much amused with its strange appearance, and probably it will entice you to get your fingers well pricked with the furze on which it hangs, not feeding on it, however, but nourished by air and dew.

Then come the intensely blue gentians, the dwellers on the heights of the Alpine mountains, and on wild boggy heaths, in all countries; their blue, from its extreme depth, though of so much darker a shade, reminding us more of the unsearchableness of the sky above than any other colour I know.

The starry pentagon flower of the centaury, with its delicate pink tint, comes next, and of all English plants, I think it is the earliest in going to bed, for even before our afternoon's walk is finished, its pink blossoms have drawn in their five points, and folded closely up, not to open till the sun wakes them next morning.

Here, too, comes the honeysuckle, or woodbine, far from a regular flower, though constant to the rule of five. Delightful honeysuckle! a dweller indeed by our paths and homes, and a constant long-enduring friend; its stem becoming hard wood, and growing on and on, till perhaps generation after generation have been born and died within the house where it spreads and luxuriates, and the children who have gathered its fragrant blossoms have grown old, still owning it as an unchanged part of their home.

A constant, early, hardy friend it is, its twin leaves coming out, first of all, even in the midst of winter, bringing cheerful promise of spring, and hanging on the bare boughs through many a return of cold and storm, bearing the chill crystals of hoar-frost as merrily as if

they were but dewdrops of a summer morning. A constant friend indeed, as many a hazel stick can testify, so constant that it becomes part of the very wood itself, actually one with it, assuming the same bark, and giving it a strange twisted, whorled appearance, as if a snake had twined round it. Most boys have met with these twisted sticks, and in that case the friendship has generally ended in the death of both, for who could resist cutting such a precious walking-stick, unless, indeed, it was in a wood where such cutting was forbidden?

Wild honeysuckles are almost all white outside, with the interior of a pale glazy cream colour; those which are cultivated are as universally red on the outside, but they are both of the same species, and alike in all the main points, such as the long, pin-like pistil, the five slender stamens, the corolla with its very long throat, the little drop of perfumy nectar at the bottom, and the top deeply cut into two divisions, one long, and thread-like, the other broad, and notched into four scallops, so as to keep up the pentagon character. Then look at the bud, how the wide part is doubled down, and the slender linear division closes down over it, with a red edge marking its form, buds and fully opened blossoms all standing in graceful, bending, diverging positions on the common receptacle, guarded a little way down by leaves embracing the stem, one of the most elegant, the sweetest, and most charming of all our plants. The fruit is a red, glossy berry, which you may often find in clusters in the winter.

Another irregular flower is the Balsam, once deemed so medicinal that the very name implies something healing; though now it is only an ornament for our gardens and hot-houses. You remember that the violet is a pentagon flower, and you will soon see that

the form of the balsam is nearly similar, except that the petals are more irregular, and instead of the short blunt spur of the violet, it has quite a long sharply-pointed curly tail. There is one English sort, and a very funny fellow it is, with yellow long spurred flowers, and capsules so irritable, that the moment they are touched their little valves fly open, as if by a spring, and curl themselves up, while the seeds pop out with a bounce, and scatter themselves in all directions. For this reason it is called in English, the Touch-me-not, and in Latin, the *Impatiens Noli-me-tangere*, which means the same thing. Though English, this hasty gentleman, or rather lady, for in some places it is called Jumping Betty, is not very frequent, and the only place where I ever saw it growing wild, was on the side of a deep ravine in which the streamlet winds along which forms the cascade of Stock Gill Force at Ambleside. It is often, however, grown in gardens, as well as its almost equally impatient Levantine cousin, the purple balsam, a tall handsome plant, with purple flowers, and stems tinged with red, the leaves growing in pairs at the joints. The red-and-white balsam grown in hot-beds, and nursed in drawing-rooms, is, I believe, a Cochin Chinese.

The next division of the class pentandria, have their five seeds enclosed in a bag of pulpy matter, which furnishes excellent food both for man and bird. Ivy, which we spoke of before, is one of those of which we are willing to leave the birds full and free possession ; but we are not quite so willing to give them a share of the fruits of the genus called Ribes, for this genus includes our gooseberries and currants.

All of this race have hard woody shrubby stems, and for the most part very elegantly-formed leaves, not

unlike some ivy leaves in form, and what botanists call pinnate, that is to say, with wings, or projections on each side; but constant to their regular rule, these leaves have five points: they are apt to be a good deal furrowed and wrinkled, and the edges jagged.

Some of the American species have such bright-coloured blossoms, that they are grown only for their beauty, the American currant being of a very pretty pink, and the American gooseberry of a splendid deep crimson. On examination, however, you will find that these fine colours reside entirely in the calyx; the corolla is a poor little white thing, like a narrow white border round the stamens and pistil, and this is still more the case with our English gooseberry and currant blossoms, where the corolla is so small that it is hard to find it at all, it is only a sort of little scale within the calyx, which in the gooseberry is reddish-brown—in the currant whitish-green. It is *superior*, that is to say, growing above the germ. This, even before the blossom is over, is quite a trim-looking little green gooseberry. In the currant it is, of course, much smaller, and not hairy. In both species it remains on the fruit without falling off, as all may remember who have helped to top and tail gooseberries for a tart.

No one need be put in mind of another difference between currant and gooseberry bushes, that the first are gentle harmless bushes, whereas the others have fierce long sharp spikes, that make merciless scratches on the hands that come to rob them of their sweet fruit, whether it be stored in large smooth green bags, or in little dark-red hairy ones. However, there is a reward at the end of the scratching and tearing, for most people will agree in admiration of a gooseberry tart, and still

more of gooseberry fool. Do you know the reason of that name? I assure you, in spite of the goose at one end, and the fool at the other, it has nothing to do with folly, and is only a corruption of the French word *foulé*, which means crushed; and as to the word gooseberry, that is derived in a still more curious way. You know Midsummer-day is the feast of St. John the Baptist, and as the fruit comes just at that time, the Germans called it St. John's berries, in their language *Johannes beeren*. This was shortened into *Jansbeeren*, then into *Ganzbeeren*; and as *gans* is the German for goose, we English, adopting the name from our neighbours, learnt to call them gooseberries.

Both gooseberries and currants are native plants, and have only been brought to perfection by diligent cultivation; and in this the miners, colliers, and iron workers of the north and midland counties have had a great share, taking great pains and pride in nursing new varieties in their little gardens. They have shows every year, and prizes for the largest fruit, such as a copper tea-kettle or a pair of sugar-tongs.

The largest gooseberry ever raised was exhibited in 1825, and weighed 31 dwts. 16 grs. troy weight; indeed, no doubt its grower thought it worth its weight in gold. The sorts of gooseberries have very odd names, which remind us to whom we owe them—such as “the old ironmonger,” “the jolly miner,” and with less reason, “the roaring lion.”

Nothing has more fragrant leaves than the black currant, and how good its fruit is, either in the puddings which send children to school with purple lips, or in the jam which is so refreshing in a feverish cold. How pretty is the red currant, with its bright shining scarlet clusters peeping out from the leaves, most es-

pecially pretty when trained against a house ; and as to the white, with the transparent skin showing the seeds like pebbles in a clear stream, I think there are few fruits so beautiful to the eye.

The currants, which are brought from the isles of Zante and Cephalonia, and put into cakes and puddings, are not of the genus *Ribes*, but are in fact little grapes. They seem to have the best right to the name of currants, which is a corruption of Corinth, and I suppose the fact is, that our native fruit was named after them, as there is a good deal of resemblance. They are borne by little vines clipped, and made to grow like our currant bushes ; the fruit is of a beautiful deep purple, with a bloom like a grape on the fruit, without the shrivelled calyx worn by the *Ribes*, and not containing seeds. They are laid out in heaps on cloths to dry in the sun, packed in boxes, and come here to meet us at our festival times, in christening-cakes, in wedding-cakes, in mince-pies, and especially in those fine large penny buns, which come out in great baskets at school feasts, all brown and fresh, with those purple spots of currants, looking so tempting, that the little ones are sure to pick them out as the first taste of the great solid bun, that at first seems enough to choke a small creature, though at the end of ten minutes, you will probably see nothing left but crumbs, unless a piece is going to be kept for some smaller brother or sister who does not yet come to school, and has cried to be at the feast. "To pick out a plum" from our own cake has been perfectly allowable ever since the days when little Jack Horner sat in the corner, and said, "What a good boy am I," though after all, the wisest way in cake-eating, as in other things, is to take the sweet and solid together, instead of leaving the last to seem dull and

dreary ; but in the case of the cake not being our own, remember that we must “keep our hands from picking” as well as stealing, and that one currant out of a cake has many a time been the first step in dishonesty and evil of all kinds, to a girl who might have been trusted with anything when first she went out to service.

From the little grape of Corinth we come to the real grape vine, and the grandest of all the climbers, with its rich foliage—those splendid leaves of that beautiful pinnate form, that fine deep colour, and gracefully-cut edge, those long spiral tendrils twisting and clinging so beautifully, its clusters of blossoms like little green stars, *inferior*, that is, beneath the pulpy germ—which is in time to become such magnificent fruit, either green or purple.

We have all seen vines, and even in our northern climate they are noble-looking things, covering the wall with their handsome leaves, nestling round windows, spreading their long arms round chimneys, and sometimes reaching along a whole row of houses, though their roots may be only in some dry, dusty road-side, where it is difficult to imagine that they can find any nourishment ; but the root is long, and grows deep, beyond the upper surface of things, and the main stem, with its rough, ever-changing, and cracking bark, lives to a great age, so great that it is said that the time of a vine's perfection is its fiftieth year.

Vines in the open air bear tolerable fruit, but if we wish to see grapes in perfection, we must go into a hot-house, and look up at the noble clusters hanging overhead, curtained by their leaves, and their tint softened by that fragile shade called the bloom, which consists in reality of a number of extremely minute scales of



wax. Nothing is more luxuriant than a grand bunch of grapes, on their infinitely branched stems, hanging prone with their weight, and so thick and multitudinous that branch after branch may be cut away with their rich burthen, and yet scarcely be missed.

English wine is, however, not worth making; the sun of the south is needed to ripen grapes sufficiently for the purpose, and that which is here used comes from France, Spain, Portugal, and Germany, the inhabitants of other southern countries only making enough for themselves, and drinking it as commonly as we drink beer. On the Mediterranean coast of Spain are grown those grapes which are sent to us in a dried state, and which we call raisins, or in a pudding, plums; indeed, in some places a plum-pudding is called a figgy pudding. This puts us in mind of Christmas, too, when the grocers give their regular customers a present of raisins, so that even the poorest, if they are tolerable managers, and do not get into debt, may have their plum-pudding.

The southern countries of Europe are the places for vineyards. Sometimes the vines are cut short like gooseberry-bushes, or trained closely round short poles, trimmed, and set at regular intervals, they are stretched out, like espaliers on rods, a few feet from the ground. In other places they reach from one pole to another on trellises, and they hang down, looking very graceful and beautiful; but they look best festooned from tree to tree, or over the front of a white-washed cottage, wreathed round its balcony, or trained on a trellis so as to afford a shade round some cool deep well, or on a narrow ledge of earth, on the sunny side of some Alpine hill, where they hang down and cover the rugged rock-side with their verdant foliage.

The vintage is a beautiful sight in these countries—the men cutting down the clusters, and the women and girls carrying them away in baskets on their heads to the wine-press, where they are trodden, with the bare feet, to squeeze out the juice. The fermentation by which it becomes wine, frees it from all impurities, but it then has to wait a long time before it can be used, and the older the wine the better it is. At Xeres, in Spain—the name which we have made into Sherry—there is one cask of wine of age and strength beyond all reckoning, which is called “the mother” of Sherry, and each cask which is exported receives a small portion from this venerable and powerful lady, the quantity taken out being supplied from the next eldest cask, which is also extremely old, though not equal to the mother.

The ancient Greeks set a great value on the vine, and made a god of the Indian conqueror, Bacchus, who was said to have introduced it to them. They represented him with a crown of vine leaves, and honoured him as much as Ceres, the goddess of corn, but there was much frightful evil in their worship of him, for they had feasts named Bacchanalia, where, calling intoxication a sacred frenzy, they ran about committing every sort of wild and extravagant action.

We look upon the vine with great honour, and with better reason. We do not value it only for its grace and beauty, and for the precious fruit it bears, though even in this way we own in it one of God’s best gifts. That Judea was a land of vines—a land of plenty, of corn and wine—a land where a man might dwell beneath his own vine—where the grapes were such as the spies brought to Moses—all this we are told to show how choice a land she was in her prosperity, ere she was

blighted by the curse of her children's wickedness. When also Jacob wished to heap to the utmost, so that the power of language seemed to fail him, the blessings of heaven upon the crown of the head of him that was separate from his brethren, he called him a fruitful bough—"a fruitful bough by a well." The wife of the good man in the Psalm is "as the fruitful vine," and, all through the Old Testament, the vine stands first for beauty and value.

The chosen people themselves were the vineyard of the Lord of Hosts—He brought them from Egypt, cast out the heathen, and planted them, hedged them about with His presence, and looked for them to bring forth fruits. But, alas! what did they bring forth? And, therefore, the hedge was broken down, and the degenerate vine is rooted up by the wild boar out of the forest! Nay, He was cast out of the vineyard and slain, when He came to His own, seeking fruit, and finding none; He hath trodden the wine-press in His wrath, and hath avenged the honour of His Name.

And hath He not planted another vine in a very fruitful hill? Yea, hath He not even declared that He Himself is that very Vine, the Branch of the stem of Jesse, the true faithful bough, once sorely wounded; and are not we the branches of a wild stock, grafted in to enjoy the benefit of the sap which sustains the whole? Oh! let us fear either not to bring forth fruit at all, or wild fruit, such as an ungrafted wild nature might bear; let us strive with all our might to bring forth precious fruit, of love, joy, and peace; and let us bear it with patience, should the Husbandman prune the branches that they may bring forth more fruit. "Even from the flower till the grape is ripe." let us seek to make our fruit precious by following after the

true wisdom, for let us remember that He who sought the vintage from Judea will seek it again, and that even more terrible will He appear in His dyed garments, red in His apparel, when He shall come again to tread the wine-press alone, and to trample His enemies in His fury.

Yet it is not only by a similitude that the vine is the most honoured of plants, high as is that similitude. It shares with corn in the highest honour of all, one of which I scarcely feel willing to write, lest you should not read with reverence. So I will leave off here, only putting you in mind that when you hear of corn and wine, or see carved out in wood or stone, wreaths of wheat ears and vine leaves, it often means more than the mere token of temporal plenty and prosperity, and may put us in mind of the true sustenance of the life of a Christian soul.

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## CHAPTER XVIII.

### CLASS V.—THE ELM TREE.

IN the fifth class, we shall find the second in rank among our English trees, the noble spreading elm.

It will be a good opportunity for telling you a little about the wonders of the construction of trees, and indeed of almost all plants with woody stems. I suppose you would tell me that the trunk of a tree consists of only two parts, the wood, namely, and its rough great coat, the bark. And this is in some sense true, as we might say that we have flesh, covered with skin, but our flesh is full of numerous little vessels, and minute parts; and in the same way the wood of the

tree is of far more wonderful structure than you or I should ever have guessed.

In the first place, recollect how the end of a stick looks when freshly cut and polished off very smoothly, as boys like to do when they have a good sharp knife. There is a little pale spot in the middle, which, by the help of a magnifying glass, is shown to be of a soft spongy substance. This is the pith, and it serves to nourish the infant leaves, when they have not yet broken from their hard coverings, and are too young to obtain their support from the air and moisture.

Outside the pith is the wood, which is arranged in rings, one without the other. These rings grow darker towards the centre; and the inner and darker ones are called the heart-wood, while the outer ones are called the sap-wood. The age of the tree is reckoned by the number of the rings, as it forms a fresh circle of sap-wood every year, and at the same time the innermost ring of the sap-wood turns into heart-wood.

This heart-wood is the main strength and firmness of the tree; the sap-wood that which carries on the business of life, for through it the sap rises in the spring to support the buds and leaves. Through it, I say, for both kinds of wood are, in fact, composed of an infinity of very small tubes or pipes, through the hollow of which the sap mounts in the outer rings, while the inner ones are filled with a hard solid substance, which was originally formed in the leaves.

Across the wood you may see a number of little pale fine lines, diverging from the centre, not regularly, but interrupted and broken. Perhaps they are most distinct in the oak-tree. These are called the medullary rays, that is, the rays of marrow, and serve to conduct to the centre of the stem the sap which has mounted

through the sap-wood, which having travelled out to the ends of the leaves, descends through the bark.

This is a long account, but it is so wonderful that it would be a pity not in some degree to enter into it, so I will just tell it to you once more, so as to show you how the sap of a tree has a circulation like that of the blood in our bodies.

First, it is sucked in from the earth by the roots ; then it mounts through the hollow tubes of the sap-wood, which conduct it to the extreme end of every branch and twig ; then it turns and comes back again, together with the food the leaves have been gathering from the air and rain, through the vessels of the bark, parting on the way with some portion which goes through the medullary rays to feed the pith, and fill up the tubes of the solid heart-wood in the middle. So you see that every branch of the tree derives its support from its union with the rest, and you know of what that should remind us. We hear of sap rising in the spring, the time chosen for felling trees, because the quantity of moisture makes it easier to strip off the bark. Now, the sap is always present ; but as soon as warm weather comes, and the buds swell, they call for more to feed them, and what was at rest in the branches flows into them ; the branches demand a supply from the sap-wood, the sap-wood draws upon the root, and by-and-bye, the whole begins to return by way of the bark. Cold will check all this, and it used to be thought that the sap went up by the bark, and down by the wood, but this has been shown to be wrong. A French botanist, in order to make sure, in the midst of a sudden frost, cut down a large poplar, a yard from the ground, and found the stump dry, while the upper part dropped with sap ; another rising takes

place to feed the midsummer shoot, which brightens the foliage in middle age, with tender red and green.

When a tree grows old, decay generally begins from within, but as the circulation chiefly depends on the outer portions, we often see hollow trees with plenty of green leaves, though they have so little sap-wood, or wood of any kind, that it is hard to guess how they stand at all. What famous play-places for children those hollow trees make, and what capital nests do the owls and woodpeckers find in them! An old hollow tree is apt to be a perfect store-house of delights for lovers of insects, and lovers of birds, and lovers of mosses and lichens, aye, and for lovers of merry children too, who like to hear the screams of good-humoured play, as the small people jump out of their hiding-place, or make the smooth inside a castle or cottage, peculiarly their own, for enjoying their own little secrets, and keeping their hoards of pretty stones and pebbles.

You can now perceive why it is so important in carpentering, to cut the wood the right way, lengthways, that is to say, so as to break into as few as possible of the little tubes. If cut the cross way, all the tops of the tubes would be cut open, and laid bare, so as to let the minute drops of damp trickle into them, and cause decay; besides, it is much smoother to go along with the tubes. The grain of the wood, and the different patterns on boards, are caused by the rings of the heart-wood, the larger ones being innermost, and nearest the centre.

Now, then, for the elm itself.

In March and April you may see its branches thickly covered with clusters of small dark brown blossoms, and when you can get a near view of them, you will

find that these are small greenish brown cups, containing five red stamens and two styles, growing out of a little round germ ; but the seed is not apt to ripen, and the tree usually propagates itself by throwing up suckers from the root.

The leaves are small, egg-shaped, and serrated, the bark rough, though of a finer grain than the oak, and less apt to be overgrown with moss and lichen. The wood is not so hard nor so enduring as oak, and though it is very useful for many purposes, the especial value of the tree is rather in its life-time, than after it is cut down. How delightful is the cool shade of a lane shut in on either side with hedge-row elms, those firm grand arms of theirs reaching out and embracing, far over head—hedge-row elms, I mean, allowed to grow to their proper form and beauty, not trimmed close, and deprived of all their fine long branches, as they are in some of our counties, where they look more like tall Jacks-in-the-Green, than like the fair spreading elmin tree.

Or think of a church-yard bordered round with elms, casting their quiet shadow on the graves around, and perhaps over a clear streamlet, fencing it in on one side, and dividing it from the fresh green meadows beyond, the sun-light making its way through the thick leaves, and falling in patches on the grass and water, and the old grey walls of the church, and quivering and moving about so pleasantly when the wind shakes the branches. What a fair peaceful spot it is! closed in from all the world, and those noble trees making a sort of outer church, with pillars and arches, where the thoughts of the living may be sobered, and where the dead rest within the shadow of the church.

Or how pleasant it is to see some park, the green-



sward shaded by tall elms, in threes, or pairs, sheltering the cattle on hot sunny days, and in early spring loaded with the multitudinous nests of noisy rooks. Rooks like elms much better than any other tree, and their black satin coats and hoarse chattering voices seldom fail where these trees are numerous, as in the spring they fight over the sticks they carry to build their nests. In the summer they teach their black children to fly, before they can feed themselves, and in autumn and winter fly circling round and round in the air collecting for an evening assembly, and evidently having a friendly conversation on the best fields for grubs and chaffers, before going to roost, like large black fruit on the elm trees.

Grandest and best of all is the elm tree, when it stands alone in its pride, its magnificent trunk rising like a column, and stretching out its protecting arms all round, like a monarch in charge of the country. Elm trees grow very fast, but they live very long, and some of these fine single elms are recorded to be of a great age. There was one at Gisors, on the frontier of Normandy, where the kings of France and dukes of Normandy used to hold conferences together, and which was large enough to shelter both their trains. It was more than two hundred years old when it was cut down by King Philippe Auguste, out of hatred to our Plantagenet kings. At the first French revolution, a great many fine old elms were cut down, which bore the name of King Henri IV. (who died in the year 1610.) He had planted many with his own hand, and had recommended the planting of many others round church-yards, and to form avenues at the entrance of towns.

The first elm-trees in Spain were taken thither

from England by Philip II., who planted them near his palace of the Escorial; and at the beautiful Moorish Grenada, in the midst of all the glowing sunshine and southern beauty, the English traveller is surprised to find himself in an alley of over-arching elms, green and shady as those in the lanes of his own home.

Queen Elizabeth was a planter of trees, and the oldest elm known to exist in England is a stump at Richmond, now fenced in and covered with ivy, which was planted by her hand, and therefore has always been known by the name of the Queen's elm.

The most interesting of all our English elms is, however, one which still stands near the entrance to the passage leading to Spring Gardens, for it is that one on which King Charles looked as he was going to his martyrdom, saying, "That tree was planted by my brother Henry," that brother, the remembrance of whose boyish days might well

"Haunt him in no vexing mood,  
When all the cares of life were over."

There is another kind of English elm with broader leaves, called the Wych elm, and another sort proper only to Scotland, where our English elm was not known till after the union of the two kingdoms.

## CHAPTER XIX.

## CLASS V.—UMBRELLA FLOWERS.

THE next family of the great fifth class are the umbrella carriers, or umbelliferous plants, so called from the Latin word *umbella*, an umbel, or little shade.

They are not, however, by any means the most shady of the vegetable tribe, for few are of any great height or size, and their leaves are so deeply cut and carved, so slender and so branching, that even a parasol-ant would hardly be sheltered under one. They have nothing of the umbrella but the spokes.

First, there rises from the ground one tall straight stem, often hollow, and sometimes either ribbed, curiously spotted, or covered with hairs. The leaves, spreading and elaborately pinnate, grow for the most part close to the root, and a few more grow at the joints of the stem.

Each stem is terminated by an umbel, that is to say, five, six, seven, or eight little slender branches, all growing out from it, as their common centre, and all of equal length, like the ribs of a fan. From each of these there springs a second set of lesser spokes, each of which bears a small flower, with five petals, five stamens, and two pistils.

These flowers are usually white, yellow, or green, and so much alike are the plants of the tribe, in general appearance, that it is not easy to distinguish one from the other. Almost all have an oval fruit, which splits into two halves when ripe, and becomes brown. The

prettiest seed among them is that of the shepherd's needle, a low plant, which you may easily find among the corn, with some of its umbels still bearing white flowers, whilst others stretch out the long sharp-pointed beaks of their seeds, from which they have taken the name of Shepherd's Needle, or Venus's Comb.

Umbelliferous plants usually are found in temperate climates, and, strangely enough, they are in most cases unwholesome in their native state, though, when cultivated, they become very valuable vegetables. Carrot, fennel, parsley, and celery, all have wild brothers, which it would be very dangerous to eat, and even our garden celery is only made wholesome by being kept in the dark, half-buried in the earth, which, though it makes it very pale and yellow for want of the light of the sun, deprives it at the same time of its poisonous qualities.

Carrots have by diligent cultivation been brought to be those large bright orange-coloured roots which look so tempting when sliced into broth. Their leaves, too, are remarkably pretty, and in the days of the shops, of which I told you before, the carrot-bed was our best warehouse for silk dresses, as the variety of colours, purple, crimson, scarlet, yellow, and green, all blended together, was such as no other plant furnished.

Caraway seeds, which we find in seed-cakes, belong to an umbelliferous plant; and that best of sweetmeats, angelica, is made from the stem of another, which grows in wet places.

Earth-nuts, which all country children are perpetually seeking in vain, lured on by the legend of some older cousin, who once dug up a beauty, are the tubers belonging to a very pretty umbelliferous plant, with star-like blossoms, and delicate leaves, and a fibrous root,

with a tuber that unskilled hands generally leave behind.

Hogweed has rough hairy pinnate leaves that children often bring home from the hedges to delight the pig with, and late in the year it bears large umbels, so thick and close that they make quite hollow cups.

Cow-parsley is a delicate pretty plant, and its purple stem in early spring, fluted like a pencil-case, and covered with small white hairs, is one of the most beautiful of unregarded common things.

The largest of the tribe that is common among us, is the tall poisonous hemlock, whose ribbed and spotted stem is so well known to village boys, as being capable of being made into a sort of musical instrument, for the perpetrating of horrible noises, causing great exertion to themselves, and making their sisters stop their ears and run away. An immense kind, called the chandelier hemlock, has lately been brought to our gardens from America. It is like the common sort seen through a magnifier; it is to common hemlocks, what the Mississippi is to other rivers.

The gout-weed has handsome dark green smooth leaves, and a creeping root, very hard to turn out when once it has made its way into a garden. It used to prevail to a great extent in my own little nook of a garden, and no wonder, as you will say, when you hear the way I managed it, which was so silly that I can hardly believe any child could have thought of it.

“Mamma, I am going to give up half my garden to that weed, and see if it will not be contented with that.”

Well, I was a bad gardener; but it will be well for us if we do not treat the gardens within in the same fashion, by letting some one fault go on unchecked, for

it will as surely eat up and ruin our hearts as the goutweed did my poor little piece of ground.

The sanicle, a curious plant growing in woods, has umbel-forming little balls of brownish white flowers, and is the last of the tribe that seems to be worth noticing.

Perhaps you may be inclined to think that there are some umbellate flowers besides what I have described, growing on trees and shrubs, such as the elder and the laurustinus ; but here you would not be right, as the cyme, or flat cluster, in which their blossoms grow, is irregularly branched, not in distinct circles of spokes like an umbel. Besides, they have three stigmas instead of only two, and their fruit is a single hard seed, enclosed in a berry.

Elder blossoms are delicious in smell, as you pass along some shady lane, where they raise those fine broad flat cymes, valued by the makers of elder-flower water, and afterwards bearing dark rich purple berries, so useful for making elder-wine ; while little boys have scarcely less liking for the tree, the branches of which may furnish them with pop-guns, when they have pushed out the soft pith. This pith is so large that we have a good opportunity of seeing in it what plants are made of. If you look at a thin slice of it, or at the pith of a rush in a magnifier, you will see that they are something like a honeycomb, divided into six-sided compartments or cells. These cells, tiny as they are, are larger in the elder pith than in almost any other plant, for they are found in every vegetable that grows, in stalk, leaf, and blossom ; the whole is a tissue of these minute cells, formed of a thin skin, or membrane, colourless itself, but holding in each cell a drop or grain, green, red, blue, or whatever may be the colour

we see in flower or leaf. How beautifully arranged these little cases must be, to give the delicate shading in one flower, and the sharply-defined tints in another—a blush rose, and a tulip for instance! It is the white shining membrane through which we see the colour, that makes flowers have their satiny polished look, and indeed that polished surface is of great use in turning off wet, being such that dirt cannot stick to it. Inside the petals the colour is generally liquid; in the leaves there is a little grain in each cell, lying in the midst of a green liquid, which dries up as autumn comes, while the grain turns yellow, red, or brown.

A good deal like the elder in appearance, are the white blossoms of the wayfaring tree, so called because it grows by road-sides, and cheers the eye of the dusty traveller. It has large ribbed leaves covered with short white cotton, and its berries when half ripe are most beautiful, being a pale waxy yellow, shaded on one side with deepening red. Of a bright clear scarlet are the berries of the pretty wild Guelder rose, which blossoms in a very peculiar manner. All the outermost flowers in the cyme are large, and of a much brighter white than those within; but on examination, you will find that they contain no stamens or pistil, and only serve as an ornamental border to the smaller flowers within, which are perfect in all their parts. The Guelder rose, cultivated in shrubberies, and called by children the snow-ball tree, bears nothing but these imperfect flowers, which, instead of being merely an edging, occupy every branch of the cyme, and form those beautiful white globes, so brightly white and so soft. Most delightful playthings are those summer snow-balls, coming with Whitsuntide, and joined in all our pleasant remembrances of May and June, and long

warm evenings, when they look so white and moon-like in the midst of the dark foliage of some shady path. The snow-ball tree is said to have been first brought from Flanders, and to have taken the name of Guelder rose from the Duchy of Gueldres.

Laurustinus, gay even in winter, with evergreen leaves, pink buds, and white blossoms, is a native of the south of Europe and north of Africa. The blossom and manner of growth of the pretty white snowberry a good deal resembles these, though it has but one style, and its little pink flowers grow in pairs instead of cymes. It came originally from Canada, but it likes our climate so well, and has been planted in so many woods for pheasants to eat, that it may soon be looked upon as being naturalized among us.

Next follow a race not very pretty to look at, though all of them are wholesome, and some really valuable. These are the goosefoot family, with their tall spikes of small green blossoms, all possessing five stamens and two pistils, and large coarse spreading leaves. There are many of them growing wild in England, the largest of which was once much valued and eaten as an excellent and nourishing article of food. You may find it growing on most old dunghills and heaps of rubbish, and may know it by the bright pink colour of the lower part of the stem. Its old names were "fat hen," or "Good King Henry;" after which King Henry I cannot tell, though I had rather call King Henry VI. "good," than any of the other seven. One kind, however, is still favoured by being grown in gardens, and that is the spinach, which makes such a pretty dark green ground for poached eggs to repose upon. Of the same family is the beet, the root of the most beautiful colour that ever comes in our way, so fine is the deep rich red of those concentric rings, in



the midst of their clear pink juice ; and another of the same tribe is the great mangel-wurzel, a German name, which signifies “ root of scarcity.”

This very large class, V., is nearly finished, and I dare say you are tired of hearing of it ; yet I must not miss telling you of the thrift, which makes so neat a border for cottage flower-beds, and is such a lover of salt, that it grows equally well on the rocks by the sea-side, and all round the salt-mines of Cheshire, so that if you wish to oblige it very much, and make it give you plenty of its pale pink blossoms, you must now and then afford it a little salt. It has five pistils, as well as five stamens ; and so also has that pretty pale blue flower, flax, of which you no doubt have read a great deal when learning the history of linen ; so I shall say no more about it, except that there is a tiny sort of flax, with a little delicate white bell, like a lily, which grows in the driest parts of heaths and moors.

Last of all comes that very strange plant, the sundew, a great lover of bogs, but very well worth pursuing into them, though you must be an early riser indeed, if you wish to see its white blossoms open, for they never expand except just at sunrise, and shut up again immediately after it. Yet they and their six pistils are not the strangest part of the plant. Look at its leaves, round green things, widening out from a red stem, the shape of a battledore, and covered with red hairs, and on these red hairs, however hot the sun may be, there is always what looks like a pearl of dew, retained there since the morning. It is not, however, a real drop of dew, it is viscid or sticky, as you will find on touching it, and it exudes from the plant. Sometimes small insects may be found glued to the leaves by this drop of dew, and some persons think that the plant lives

on their juices, and that the leaves act as a sort of trap to catch them for it. I do not much like the idea of this pretty flower being so like a beast of prey, in its own small way, and I had rather believe that the little flies entangled themselves by chance, and then could not escape.

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## CHAPTER XX.

### CLASS VI.—LILIES OF THE FIELD.

It is pleasant to have to come at last to considering the Lilies of the Field, how they grow in their beauty, and the glory of their raiment.

Most fair, and pure, and regal of all, stands the great white lily,

“The Lily flower,  
With blessed Mary seen,”

which in pictures of the Annunciation is always drawn in the hand of the angel. There is nothing more purely white than the petals of this lily, not fragile and fading at a touch, like that other delicate thing, the convolvulus, but firm and steadfast, retaining their whiteness unsullied to the last. How exquisitely do the grand, queen-like flowers stand out from the tall stem, feathered upwards with narrow leaflets, and crowned with half-opened flowers, and tapering buds. Very handsome, too, are the six long stamens, bearing their caskets of gold dust, as if waiting on the graceful bending pistil in the midst, all shut within those superb white petals. It is truly the queen of our gardens, and when we know that its native home is the Holy Land, we may please ourselves with thinking that it may have

been the very flower of which our blessed Lord spoke, when He said that Solomon in all his glory was not arrayed like one of these. No raiment, indeed, that ever was spun or woven, can be as one of these, nothing can ever be so lovely save the robes, unseen by us, in which each heir of our royal birth is arrayed when carried from the Font. Those are the only robes for which we need take thought, and oh! how much thought!

White lilies are freely given to us with all their store of precious thoughts. They spread fast, they care little for cold or heat, they flourish in cottage gardens or smoky towns, and they live so long in water, that a sick room may often be cheered by their loveliness. I told you there was a confusion between the lily and fleur-de-lis, and so, though it is the iris that is found in the French coat-of-arms, the white lily is the especial flower of the royal line of France. It was scattered on their path when they returned after the great Revolution, and the name of the white lily still thrills the hearts of those who cling to the old faith and loyalty.

Some people think white lilies useful as well as beautiful; indeed, I dare say many of us can remember getting some hard knock or bruise, and how the useful person of the family, who is always nurse, doctor, and healer of cuts, came out with her bottle of white lily leaves preserved in brandy, and though they did make the hurt smart, she comforted us so kindly that we could not help being cheered up.

I believe the Tiger Lily, with its orange petals, and their black spots, also comes from the Levant. The Turk's cap is so called, because its petals turn backwards into a round form, and, together with the stamens, look very like the pictures of Eastern princes,

be-turbaned and be-plumed, just what would suit Blue Beard. Its home is in Germany; and that of the brilliant scarlet Martagon, is Hungary. There are many other species of lily, all very handsome, for the most part large, and all without any calyx. They have bulbous roots, and, indeed, I have told you all the general features of the whole tribe when speaking of the snow-drop and daffodil, so I will only mention a few of the most noted and beautiful kinds.

The Tulip takes care not to be forgotten. Dressed in its gaily-painted robes, it holds nearly the same place among flowers, as the peacock among birds, and always stands as an emblem of conceit. You know its black stamens and its great triangular pistil. It is altered by cultivation from a small species which grows wild in some few parts of England, and is the especial darling of the Dutch, who sometimes give enormous prices for a single root. There is a story of a sailor who, while waiting in a merchant's office, took up what he thought was an onion, sliced it up with his knife, and ate it. Just as he had finished, there was a great search for something, and much dismay when it was missing; for behold, the onion he had eaten, was a precious tulip, the price of which would have bought his ship and its lading twice over! Some little children who meddle with what they don't understand, and what does not belong to them, may do just as much mischief.

Very like the tulip is the delicate bending, drooping, fritillary, chequered with purple squares like a chess-board, or a snake's head; indeed, it is sometimes called the snake flower. It is not very common in England, and the only place where I know it grows wild, is at Oxford.

A far grander flower is the great fritillary, called the crown imperial; its circlet of bells, each possessing six drops of clear nectar, depending gracefully beneath the crown of narrow leaves, making it a magnificent plant; and it well may be called an imperial one, since its native land is the old empire of Persia; then it came to Constantinople; and then to Vienna, where it grew in the Emperor's garden; and thence was sent to England—certainly before Queen Elizabeth's time. As soon as the blossoms fade, the stems stiffen and hold up their heads, so as to keep the seed from falling out.

Guernsey lilies are very grand, beautiful flowers. They are so called, because a ship bringing some roots from Japan was wrecked on the coast of Guernsey, and the bulbs buried in the sand, as it happened, the very best soil for them, and there the beautiful things grew up and blossomed, surprising all the beholders.

The Belladonna lily sends up its leaves in spring, and its stout brown stem bearing a garland of delicately-shaded pink-and-white flowers very late in autumn. The whole cluster of flowers come out of a sheath, or spathe, as botanists call it; the buds are beautifully shaped, and its elegance, and fair pink-and-white complexion, have caused its Italian name, which means "fair lady." It is a native of the Cape, but it is quite hardy, and ought to be more often found in English gardens than it is; pleasant as it is to see fair fresh tapering petals looking spring-like in the midst of the frost and fog of November, as, unlike most plants, it keeps to the seasons of its native clime in the southern hemisphere. One hint I would give to console those who have had a root given them, and fancy it is dead, because they see nothing of it: our

fair lady dislikes moving so much, that she seldom shows her face for several years, till she has recovered, and has had plenty of time to settle herself in her new home.

I like few names of flowers better than that of the Star of Bethlehem, a brilliant white star in truth, glancing among its long green leaves, and well fitted to put us in mind of the Star of the East. It is an Eastern star, for it comes from Palestine, and though sometimes found wild in England, it is probably a run-away from the old convent gardens, whither, perhaps, it was brought, with its name, by some pilgrim from the Holy Land.

I am not fond of keeping so much to garden flowers as we have done this time ; but the fact is, that these flowers, with their parts in sixes, are all so handsome that they are sure to get into gardens. The blue-bell (I mean the wild hyacinth, the English blue-bell, not the hare-bell, or blue-bell of Scotland) is wild enough indeed, spreading in perfect clouds over the copses, and supplying the main strength of the May-day garlands, drooping its profuse deep blue-bells in such multitudes, each footstalk bearing a little bract\* as blue as the flower. How pretty are the buds pressed close together in that cluster, and how graceful the long linear leaves ! I dare say most children, happy enough to be brought up in the country, would say, as I do, that some of their most joyous days have been spent in blue-bell gathering. I shall never forget one walk, nor I am sure will the little cousin who shared it with me, when we went through a beautiful wood, tall trees above, and a path winding along close to the sea, which sparkled and glanced through their leaves ; and

\* Bracts are leaves growing at the foot of the flower-stalk.

on the other side, a mossy bank rising, covered with such a profusion of blue-bells! How we filled our hands with them, and having agreed that we would be very good, each made a point of giving the other her very finest, most thickly-clustered bells, or the precious white ones, and still more valued pale lilac bells, which we used to call pink, and think such a prize! And then, when our nurses got into a hurry, and told us to gather no more, I can still remember the feeling of resolution with which we passed the choicest blue-bells, not attempting to gather them, though, of course, just because we had not got them, they seemed the best of all. Only think, if that walk is so pleasant to me to remember after twenty years, and because I was honestly trying to be a good little girl, as well as for the sake of my companion, does it not show us the lasting value of really loving, and trying to do right? The thought of those untouched flowers is precious still, and will always be so; but would it be so if we had disobeyed and turned aside after them? Depend upon it, it will be just the same in greater matters, for a day will come when what we most prize now will be as worthless to us as are in themselves the blue-bells of twenty years ago. The love and the self-restraint will be the lasting things.

Even blue-bells cannot keep entirely among wild flowers, for the blue-bell is a hyacinth, and its eastern brother, the hyacinth of Bagdad, is one of the most petted of plants. In its natural state, the blossom is not so long and slender as the blue-bell, nor are the ends of the petals so prettily curled back. We generally see it double, and of many varieties, to which strange names are given. The hyacinth carries so much nourishment in its bulb as to require no earth,

and many town children know the pleasure of keeping a bulb in a glass all the winter, watching it shoot out its long white fibres into the water beneath, and set up its almond-shaped bud, which grows and spreads till leaves, and stem, and blossoms, blue, white, or pink, unfold themselves. Grecian legends say that this flower sprung from the blood of Hyacinthus, a beautiful youth, who was killed by accident by their god Apollo, and its leaves are marked with I. A., the first letters of his name in Greek; but no one ever has been able to find any such marks on them, nor on the wild blue-bell, which is therefore called in Latin, *hyacinthus non scriptus*, the unwritten hyacinth.

The beautiful lily of the valley, shading its pearly bells under its broad green leaf, is wild in some fortunate woods, and there each petal is marked with a single deep purple spot, but strangely enough, these disappear as soon as the root is transplanted into a garden. How well they grow and thrive in some old-fashioned gardens, spreading out in a whole wilderness of green, and raising their lovely modest heads.

Solomon's seal is of the same genus, and a very pretty plant it is, its bending stem furnished with broad green leaves, growing alternately, and at the spring of each leaf, a pale green bell drooping gracefully down. Both it and the lily of the valley have their seed in a purple berry.

Garlick and onions belong to this class, as you may see by looking at the six-pointed blossoms in the round head of the onion. So does the great tropical plant, the aloe, and the pine-apple, which grows in so curious a manner, its purple blossoms being perched on each division of what we call the fruit, which seems to be in fact a stem crowned with the solid dark prickly leaves.



It grows in quantities in hot countries, though only in hot-houses here. Indeed, it has hardly been known in this country for more than a hundred years, and is still considered as one of the rarest of fruits. It is lucky for us homely people that we can do very well without it, for we have been given much that is pleasant to our taste, and wholesome for us, to grow freely without over-care or cost under our own temperate sky.

Another fruit produced by a six-stamened flower is the barberry. Perhaps you know its very sour oblong red berries, its sharp spikes of thorn, its shining prick-edged leaves, and its blossoms like clusters of little yellow roses; but probably you do not know how curious is the arrangement of its stamens. They are bent back towards the edge of the petals, which guard the anthers from rain, but they are thus so far from the germ that the pollen could never reach it. Touch the lower part of the filament with a pin. It is as if you had touched a spring; up jumps the filament, it bends over the germ, opens its anther, lets out its pollen, then goes quietly back to its proper position. Instead of a pin, this is effected in general by the little foot, or slender trunk of a bee seeking honey, and thus by a wonderful arrangement of Providence the insect repays the flower for the honey by setting the machine to work by which the seed is produced.

Asparagus is another six-stamened plant which is good for food, though it is not the red and yellow berries that we eat, as they hang on the feathery little trees that form such pretty groves along the beds in autumn. It is the young buds of the plant itself that form the thumbs (as the French call them,) of asparagus, that are so good to eat in the spring. It grows

wild in one small island on the coast of Cornwall, called after it Asparagus Island.

Do you know that stiff yellow thing, the Asphodel, its hard orange stem, its grass-like bluish leaves, its star of six petals, and six downy stamens, tipped with a red anther? We hear a great deal in poetry about dwelling in meads of yellow asphodel, but they are not at all the places I could fancy dwelling in, though I like very much to botanize in them, for they are generally peaty bogs, full of black moist earth. I think they must have been admired by the Greeks as being connected with the mountain air and fresh breezes, delightful in so hot a country; and that they have travelled from Greek into English poetry, without much reason.

In still wetter places than these meads, generally in a pond or ditch, we find the graceful water-plantain, its pale lilac or white flowers possessing only three petals, and putting us in mind of the three-petalled blue spider-wort of our gardens in their form, though the growth of the plant is very different. The spider-wort has all its flowers packed up in a sheath, and has linear leaves, while those of the plantain have long stems, and are slightly rounded, and its blossoms spread out on branches on each side its tall upright stem.

Now that we have got into the bogs, we must not come away without a few rushes. Don't you like rushes? Shining, green, tapering rushes, so polished outside, and containing that soft white pith. They are choice playfellows for a country child. What famous helmets, or fools'-caps, (whichever you call them,) do they make, twisted round a band below, and gathered into a peak! Or they will make still better slight baskets than the knock-head, and if you have the patience

to plait them and sew them up, they will make real good baskets that are worth having, and last for some time. Their pith serves for the wicks of rush candles, and themselves for chair bottoms, so they are by no means to be despised by grown-up people any more than children. They have no leaves, only stems, and their blossom is that brown tuft which we pull off before using them. Those tufts contain a multitude of little six-pointed starry flowers. You may see their form more distinctly in the pretty little wood-rush, which is more perfect in its parts, having leaves encasing the stem like a grass, and a small starry flower, containing six stamens and a three-cleft pistil.

One of these rushes is the Papyrus, the reed of Egypt, on the rind of which, in former times, people used to write with an iron pen, digging in the letters. It was from this that paper was named. I have a piece of this paper rush, which was raised in a hot-house. It is very large, a regular triangle in shape, the blossoms on branches, all growing out together at the top. The green skin is tough and leathery, not at all like paper, you would say, and it is filled with a quantity of white pith.

Lastly, before leaving the water, we must take the table-cloth of the butterfly and grasshopper. Do you remember

“A mushroom their table, and on it was laid,  
A water-dock leaf, which the table-cloth made?”

The water-dock is very handsome, its dark green leaves, red stems, and strange blossoms, make a grand appearance, and here it does little harm, though its relations are some of the most troublesome of weeds, their roots creep so obstinately, and are so hard to kill. Even when dug up and left outside the earth, they will still

shoot out again, and perhaps it is from this steadiness in growing, in spite of adverse circumstances, that one kind has acquired the name of patience dock.

The small sort, called the sorrel-dock, or cuckoo's bread-and-cheese, is esteemed by many children for its pleasant sharp taste, and by many a dock leaf is used as a cure for the sting of a nettle.

The dock has three calyx leaves, three red petals, six stamens in a little bunch, three pistils, each possessing a most beautiful little white-tufted stigma, and altogether producing one seed.

So ends our class of sixes, not very distantly related to the spears and flags of class the third, only doubling most of the parts, which in that class are in threes. They are apt to have the same linear leaves, and bulbous roots, and the same gay colours; and when we remember the beautiful form of the hexagon, or six-sided figure, the most perfectly regular of all shapes, it seems to show why so many of our most beautiful flowers belong to this class.

Do you remember my showing you in the nut and bean how plants grow up with two cotyledons, or seed leaves, at first? All plants do so grow up, except those of the rule of three, the bulbs, the grasses, the rushes, the orchises, and the palm-trees—every one of these come up at first in a single bud, or, as botanists say, one cotyledon. They all have their parts in threes and sixes; their leaves, as we have seen, are linear, and without the network of ribs and veins of other leaves, and their stems are always straight instead of branched, and often hollow and jointed. These are curious differences for you to observe and remember.

## CHAPTER XXI.

CLASSES VII. VIII. IX. X. XI.

AFTER the first six classes we begin to get over the ground a little faster, for the seventh class is very small, there is only one English plant belonging to it, and only one other that is often cultivated here. The one English plant is the little winter-green, a white flower that only grows in the northern counties. The other is not small, for it is that noble tree, the horse-chestnut. I cannot tell where the native country of the horse-chestnut may be; some say it is among the mountains to the north of India, and I should guess that it must be a rather cold place, because the buds are so well protected from the winter's frost.

We see them even before Christmas, pointing up their hard, sticky, dark-brown noses, in readiness for the next spring, and if you wish to see a pretty sight, I will tell you what to do. Take one of these buds, and with a sharp knife and steady hand make what, in learned language, is called a longitudinal section of it, that is to say, cut it in two lengthways, just as the meridians of longitude are marked on the globe. First, you see there is an outer case of hard brown scales, covered with gum, to keep all safe and firm; there are at least as many as seventeen to one bud, lapping one over the other, so that Jack Frost may pinch as hard and tight as he chooses without doing the least damage to the precious little gem\* within. A lady packs up her gems and jewels in her morocco cases, lined with

\* Gemma, a gem, is the Latin name for a leaf-bud.

satin, and made soft with cotton-wool; but Nature guards her jewels still more choicely, for smoother than satin is the green lining of the innermost of these gummy scales, and finer than cotton-wool is the soft silky down within them, where nestles the young spike of blossoms and leaves. You can already see the form of the tapering spike, and the green of the mites of leaves, and if you have a little microscope, and are always hunting for objects for it, you will be delighted to see for yourself how perfect the whole branch of leaves and blossoms is already in this embryo state. Is it not beautiful? And the more we look into them, the more we see the perfection of these works of a Divine Hand. A German botanist, with a much better glass than we are likely ever to have the use of, managed to count the flowers, sixty-eight in number, and to see the pollen on the stamens.

In the spring the sun dries up the gum, the scales crack off, and are strewn under the tree, as we pull brown paper off a parcel; and as if a fairy wand had touched them, out burst the light-green leaves, like drooping fans, seven springing from one footstalk, and four or five footstalks from each bud, all centring round the straight spike of blossoms, which alone points upright, while the leaves hang drooping round it. Then how fast they grow, as if they all were racing which should come to their full size first, the spikes shooting higher and higher. The leaflets, which to-day were as long as a baby's finger, are to-morrow quite as long as your own; the next day a man could hardly span them, and in a week, it must be a giant indeed who could lay the leaf on the palm of his hand. Next, the May sunshine opens the blossom buds on that tall upright branch, where they grow together in

little bunches of three, twenty-two of these threes, perhaps, on one spike, each with a calyx divided into five, a corolla of five petals, with seven stamens, and one pistil, its germ round, and its style tapering. The petals are white, but the two upper ones have a large spot of colour on them, sometimes yellow and sometimes pink, and this gives the flowers a peculiarly pretty variegated appearance. Beautiful things! I am always sorry when the white petals fall off, and the tree of noble spikes loses its beauty, and ceases to be what it has been very well named—a giant's nosegay. It would be too much for the poor tree to maintain and bring to perfection a fruit for every one of the sixty-six flowers on each spike; so only two or three on each even form their fruit, and of these one or two generally fall off, and lie like little green prickly balls on the ground; the others swell into a large prickly green case, with a beautiful smooth lining, like white kid leather, fashioned into two cells, holding the delight of all children, two polished brown seeds, as large as a marble, and veined and smooth as the mahogany dining-table. What a prize they are, and what fun to pick them up and play with them; and how they are admired, especially when only half ripe, with their brown and white in spots like a pie-bald horse! If you put them in the fire, beware, for the heat turns their moisture to steam, and in trying to break out of their hard case, the steam drives them out with a bounce, breaks the case, and makes it fly all over the room. Don't eat them either, for they would make you very sick; leave them to deer, which are very fond of them. There is another kind of horse-chestnut, with red blossoms and smooth fruit, not nearly as handsome as the common kind. Now we have come to another tree,

we will not leave it without my telling you something about bark. Did you ever peel a stick? First there is a thin brown skin, next a thicker coat, green outside, which is apt to hurt one's fingers. These are the two coats in their youth, and they are always growing and thickening each year, not from the outside, but by layers from within. The inner rind is called the liber, and on this the Romans used to write, and so in Latin a book was named liber, and you know in English a number of books is termed a library. Who would have thought of a library being so called from the bark of a tree! The bark, I said, grows from within, receiving layers from the useful sap-wood, and so the outer coat of the tree is always growing too tight for it.

Some trees, such as the horse-chestnut, seem to manage nevertheless to keep their garments whole, but the birch peels off its old skin in long thin purplish ribbons, that are tempting to pull at; the plane makes a ragged figure of itself, by casting off its jacket in great flakes; and the oak and elm show deep furrows in their outer bark, where it has split and parted wider each year, to make room for the under growth of the liber, and the enlarging rings of the sap-wood.

I told you about most of the eighth class, with parts in fours and twice fours, when we were about the last bells of summer; there are only a few more worth mentioning, such as the bright yellow-wort, with its stiff stem and handsome flowers, and the whole tribe of whortleberries and cranberries. These have stiff white blossoms and low shrubby stems; they grow on a peaty soil, chiefly on mountains or bogs; and their berries, either red or purple, have a pleasant sharpness, which makes them very good for tarts or for jam. I have heard a lady say who spent her younger days in a town



on the borders of the New Forest, that all the tarts to be bought there in shops, were made of whortleberries, and very sour they were. Now, the cranberries most used in tarts, are imported from America; but many mountain children in our own country still gather them for market, and the children who have learnt that pretty book, "Moral Songs," will not have forgotten the little sick boy's gift of purple berries to the kind lady.

The beautiful American plants, azaleas and kalmias, belong to this class. I think the bud of the great white kalmia, or calico flower, as it is called in America, one of the prettiest things I know; and the flower pinned down with its eight regular stamens, is very elegant. The stamens have the same curious property of springing up and shedding their pollen as the barberry. These are not apt to be seen out of grand gardens, and the only one of the race that is apt to come in small people's way is the rhododendron, a very splendid mountain dweller, who has made himself, his evergreen leaves, and bunches of crimson or lilac blossoms, nearly at home in our climate. One small sort grows in Switzerland, and the Asiatic ranges of mountains are the proper abode of the handsome ones, where they keep high enough to be out of the great heat, but too low for perpetual snow; and when planted here, in peat or bog, or anything like mountain soil, they grow like natives, flourish, and attain a great size. All these three, however, kalmia, azalea, and rhododendron, have honey which is good for bees but not good for man, and there are stories, both ancient and modern, of very serious illnesses being caused by eating honey made entirely from these flowers.

The maple has eight stamens, growing in a small green blossom. The fruit is very curious, two long

lobes, commonly called keys, hanging down from a long stem, and each containing one seed. The maple changes the colour of its leaves early in autumn, and looks very gay in the hedges; its leaves, too, are of a very pretty lobed form, especially those of that large, handsome kind, the sycamore. The sap, too, of one kind is very sweet, so sweet that in North America it is made into sugar; I have seen a cake of brown, coarse-looking maple sugar, such as each Canadian farmer makes for his own use, just as we make cheeses.

Peru is apt to grow sun-coloured flowers, and thence comes what we foolishly call the nasturtion, though it has two very good old English names, Indian cress, and yellow lark's heels, besides a real Latin one, *tropæolum*, or trophy, given because the leaves are like shields, and the flowers like golden helmets. It is a droll flower, with its yellow calyx growing out into a long spur behind, and the little fringes to its yellow or orange petals. These petals are very good when put into a salad, which is the reason, I suppose, of their being called Indian cress; and it is said that just before sunrise, especially in thundery weather, they give out flashes of light, as a black cat's back does in a frosty night. All I can tell you about the cause of this wonder is, that it is the effect of electricity, and there we stop short, neither of us much the wiser. The prettiest sort of *tropæolum* is the little canary-bird flower, so called because it is just like a little yellow bird, the bud like a canary with its wings closed, the half-expanded flower like one flying, and the full-blown like a bold cock canary, wings and tail full spread, darting out at an enemy.

Next comes the purple mezereon, blossoming in the winter without its leaves; and all the weedy race of *persicarias*, those red-stemmed things with white blos-

soms and heart-shaped leaves, that twist and twine wherever they are not wanted, and infest damp soil especially. The buck-wheat is the only one that is of any use, and that grows in such poor soils that nothing else would flourish there.

Herb Paris, an odd-looking thing with four styles, twice four stamens, four petals, and four leaves spreading on each side of the stem; and the little adoxa, sometimes called musk, a tiny green plant of early spring, growing in hedgerows, with its little flowers in round heads, bring up the rear of class eight.

Class the ninth has one English plant, the beautiful pink flowering-rush, which grows in rivers, but not very frequently. I have only once seen it, and then it was in a river in Gloucestershire. It was almost out of blossom, but it was a prize indeed. The bay-tree belongs to the ninth class; I daresay you know it well, those fragrant evergreen leaves are so pleasant to gather and make a nice mark for the collect and psalms in a prayer-book. It grows wild in the south of Europe, and was greatly prized by the Greeks and Romans; indeed, it was of bay leaves that they wove the wreaths with which they crowned their victors, either in war, poetry, or their games of strength and skill. These are the corruptible crowns for which the Greeks strove and trained themselves, with so much more self-denial and steadiness than the children of light are always ready to take for the crowns of glory that will never fade away. The Latin name of the bay is *laurus*, and this has made a little confusion, as the laurel is quite a different plant; but whenever you hear of people being crowned with laurel, like Julius Cæsar, it is sure to mean with bay.

The cinnamon tree is a sort of bay, which grows

plentifully in Ceylon, and its light shining evergreen leaves are most beautiful in the woods. It is the inner bark that we use to flavour puddings, and the seed, when boiled, yields an oil that hardens into white cakes, and is made into candles. The camphor tree, another of the same family, is found in China and Borneo, and the white lumps of fragrant refreshing camphor are found entire in the stem of the tree, while some is also obtained from its leaves by distilling them. Rhubarb is another of the ninth class; I mean the medicine that is so good a lesson to little children, in resolution and self-command. The rhubarb that is made into tarts is another of the same family. It is the root that is powdered and used as medicine, and is brought in lumps from Turkey. I wonder which of the small people who may read this chapter can take a dose of rhubarb without a fuss beforehand, and with only one wry face afterwards. If they can—no, I will not say *can*, but *will*—if they will, there is a hope that they may turn out men or women fit for something; if not, unless they will strive to conquer themselves, I am afraid they will shrink and repine at present annoyance all their lives.

Now for class ten. To this belongs the pretty arbutus, or strawberry tree, which grows wild nowhere in the British isles but on the islands of the beautiful Lake of Killarney, and the hills round it. Next comes the whole race of saxifrage, yellow and white, dwellers on mountains and rocks, the white soap-wort, and the more agreeable family of sweet pinks and carnations.

Sweet William stands first of these, fine fellow that he is, either crimson velvet all over, or white with a pink eye, and living at home in Germany, but very happy in an English cottage garden, and making a grand

show in the nosegays that you send to some sister or cousin in London. The cloves, carnations, and picotees, about which gardeners are so choice, all come from one common sort, wild in the south of Europe. I don't like any so well as the old blood-red clove, and the plain white pink, they both smell so sweet; and yet, saying this seems rather hard on those pretty white ones trimmed with deep purple, but the worst of them is that their calyx, not being meant for a double flower, is crammed so full of their petals, that it is apt to split and look very untidy. The little annual Indian pink is very pretty, its two long curling styles always put me in mind of the trunk of some kind of insects. We have a few wild kinds, but none very common. The whole race have linear leaves, a cup-like undivided calyx, five petals, fastened down with a long claw, and spreading like a fan above, ten stamens, and two styles.

The little insignificant sandworts that creep on the gravel, the pretty white stitchwort or starwort, that blows on hedge-banks in early spring, the chickweed with which we feed birds in cages, and the whole family of silene or catchfly, are all ten-stamened flowers, with three long curled styles almost like the horns of an insect, their five petals each cleft in the middle very prettily. To the catchflies belongs what some children call white-bottle, or bladder-campion, from its large swelling calyx. I used to call it white robin, and fancy it the white comrade of the red robin; but in this I was much mistaken, for red robin, or rose-campion, has five pistils with its ten stamens, and is a lychnis, as well as its odd wild-looking brother, ragged robin, also called meadow lychnis or cuckoo-flower, because it shows its jagged pink petals and reddish stem just as cuckoos begin to sing.

Another with five styles is the beautiful corn-cockle, which raises its deep purple-veined petals, and long slender calyx leaves in its tall grey downy stalks, in the midst of our fields. I am afraid farmers call it a troublesome weed, and it is said that from its old name of Lolly, the followers of Wickliffe were called Lollards. In the Book of Job, the cockle coming up instead of the barley, is spoken of as a great misfortune. The yellow and white stonecrops also have five styles, starry flowers, with lumps rather than leaves; so has the many-belled pennywort, so named from its round leaves, and the lovely woodsorrel, delicate little thing, do you not delight in finding its beds, full of those pale green trefoil leaves, and exquisite white flowers streaked with purple? In Germany it is called the Hallelujah, and is thought the special flower of Trinity Sunday, because of its threefold leaves.

A word or two of the eleventh class, which includes all the numbers of stamens from ten to twenty; but among all these there are but few interesting flowers. There is, to be sure, the tall purple loosestrife, pointing up long spires by the river side; and there is the agrimony, another plant blossoming in spikes, yellow flowers, particularly fond of dusty places, and turning to seeds shaped like little cones upside down, and bristling with small hooks, that make them adhere almost as closely as burs.

We all care more for mignonette, the very name of which means a little darling. It is very sweet, and its pale subdued tints serve to set off gayer flowers, just as a quiet-coloured dress looks well with a brighter ribbon; and it is much loved by Londoners, who grow it in long green boxes outside their windows. Look at some pretty verses about it in "Moral Songs." It has

its seeds in very curiously-shaped vessels, like little urns. There are two sorts of wild mignonette; one is like the garden kind, only larger and scentless, called by the name of woad, the plant with which the ancient Britons used to dye themselves. The other is yellower, and in longer spikes, and is called the rocket yellow-weed.

Lastly, comes the houseleek. It has eleven stamens and eleven pistils, a white blossom, and great fleshy leaves, which live so very long, that its Latin name is *Semper Vivum*—always alive. It grows on the thatched roofs of houses, and very handsome it is; but some people have an odd fancy that it is unlucky to let it blow, and always cut off the poor thing's flower-stalk as soon as it begins to shoot up. It is a very silly fancy, and I never found any account of the beginning of it.

So end the first eleven classes, which are known by counting the number of the stamens.

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## CHAPTER XXII.

### CLASSES XII. XIII.—MANY-STAMENED FLOWERS.

AFTER the first eleven, as I told you, the classes of flowers cease to depend on the number of the stamens, and are settled by their arrangement. The twelfth class is *Icosandria*, which, perhaps, you may recollect, as I told you about it when we talked about the apple and the maythorn. All its many stamens are seated on the calyx, and its petals are for the most part but loosely fastened on.

We went through our most frequent and familiar

friends of this class before, so I will only mention a few which we missed. First in order, though not countrymen of our own, stand, or rather crawl, the Cactus tribe, sometimes called melon-thistles. I have only known them in green-houses, or windows, where they unfold their rich scarlet or pink blossoms on their ungainly, leafless, prickly stems, bristling with tufts that seem as if they had been pulled out of a tooth-brush, and stinging the unwary finger. The finest we see is the *Cactus Grandiflorus*, a very handsome red flower, with an exquisite tinge of purple within, and a long tongue of white stamens clustered close together; or there is the pink kind, and a second pink one, that creeps about in long ropes covered with bristles, and very seldom does its owners the favour of blossoming. At gardeners' shops we now and then see odd-looking round things, like little melons, stuck all over with tufts of hoary spikes, like vegetable hedgehogs, and now and then, by good luck, bearing one small pink blossom in the centre of each tuft; or, perhaps, some kind friend has brought you home, from the Pantheon bazaar, one of these droll little wonders, growing in the smallest of red flower-pots, and looking more like a thing in a doll's house than a living plant; but all this gives us very little notion of what a cactus really is—no, and we should not be much nearer the truth even if we had seen them growing in the beautiful rocky gardens of the Scilly Isles, where they hang down with their rich red blossoms over almost perpendicular faces of rock.

As far as I can make out, a cactus, in its own tropical regions of South America, is like a vegetable boa-constrictor, covered with porcupine's quills, hog's bristles, or wasp stings, in addition to the most mag-



nificent crimson, scarlet, or yellow flowers. Some of them are so large and thick that they produce solid wood, and they hang from tree to tree in matted, tangled ropes, twisted in and out so thickly as to be perfectly impenetrable. The axe of man is soon wearied out in struggling with them; and the wild animals themselves cannot force their way through, but can only pass through lanes, as it were, in the forest, which their own constant tread has worn down, while even jaguars cannot descend through the tangled mass below the branches of the trees. Two missionary settlements, but half a mile apart, situated on different small streams running into the same river, have not the least communication with each other through the jungle, and the only way of going from one to another is by descending one stream, and ascending the other, a distance of eight or nine miles.

In India, fences are made with cactus, and the unwary who have tried to get through them, have come out stuck completely over with spikes, pinning the clothes, and even boots, fast down to the flesh. In fact, as a fortification for a garden, the cactus must be acknowledged to be superior even to our own holly hedge. Of the same race is the great night-blowing cereus, a rich white flower that only opens by night, and with its flame-coloured stamens, as it unfolds in its own flowery land of Mexico, looks almost like a great lamp.

It would be hard to love a cactus for its own sake, though many love it for putting them in mind of some friendly window where the red blossoms have peered over the white blind, and kind voices and cheerful faces have dwelt; but the staring flower and unshady stem have few personal charms, and we willingly go to a very different plant, the fair white-blossomed

myrtle, so pure and fresh, with its tufted stamens and delicious evergreen leaves. It is a home friend, whether reared with pains and care in a little flower-pot on the window-seat, or, as in some favoured places it may be seen, flourishing up to the very eaves of the house. Broad-leaved or narrow-leaved, it is always honoured and respected, and treated as something choice—one of the simply dressed, but high-born ladies of the flowers, her purity and modest grace, her attraction, without gaiety of colour, as we said before of her companion, the jessamine. It grows in perfect thickets in Italy and Greece, though ancient writers say that it was not originally a native, but was brought from Asia. It was highly esteemed by the old Greeks and Romans, and myrtle-wreaths were used as well as bay to adorn the victors in their games. It was considered to be the plant of peace and love, and when a general gained any great advantage for his country without bloodshed, the myrtle was wound with his garland of bay. The goddess of beauty, Venus, was said to have sprung from the sea-foam with a myrtle-wreath round her brow; so the Roman ladies used to put the leaves into the water in their baths, as if they thought beauty must come out of myrtle tea. The fruit of the myrtle is a purple berry, which seldom or never ripens in England, but was once used in cookery by the Romans. There is, however, a large kind of myrtle growing in Jamaica, which is called the pimento, and which supplies us with allspice for our puddings.

The Pomegranate tree is sometimes seen in England, against walls, for the sake of its deep crimson blossoms. We must look to the bright Mediterranean shores to find its fruit ripened; rich orange-shaped and coloured

fruit, divided into five cells, containing numerous seeds in purple pulp (from which it is called the Pomegranate, the seeded apple,) gathered into a sort of crown at the top, formed by the old calyx. Its name puts us in mind of many things: the bells and pomegranates of gold that bordered the robe of the high-priest, and the workmanship of the gold of the inside of the Temple, where it must have had some signification which we cannot understand. The Spanish Arabs named their loveliest city Granada, because they thought the form of the soft rounded vale like the outline of the fruit. The fruit became the ensign of the city, which was the birth-place of our poor Queen Katherine of Arragon, and in remembrance of that fair home of her youth, the pomegranate became her badge, and afterwards that of her daughter Mary.

We now and then see the almond tree in gardens, its delicate pink blossoms coming long before the leaves, which, in one variety, have their under sides covered with a white cottony substance that gives them a grey, dull appearance. It is this hoariness that is referred to in that last and most solemn chapter of the Book of Ecclesiastes, where the Preacher says, among other tokens that the time is coming, for "man's going to his long home," that "the almond tree shall flourish." The almond tree grows wild in the Holy Land, and its fruits were among the gifts that Jacob desired his sons to carry to the Governor of Egypt, whom they knew so little. The rod by which the Lord was pleased to show that He had chosen Aaron to be His priest, blossomed with almond flowers, and was laid up in the Ark.

The almonds we use are chiefly brought from Smyrna; and they are much grown about Avignon, in

France, where the hoary leaves are said to give the country a dull, desolate aspect. The outer case of the nut is brown, and of a long form, to suit the white crescents, that look so inviting on purple raisins, or are the hearts of such very large sugar plums, that people with moderate-sized mouths had rather have nothing to do with them, and only very small people have much desire to have such a mouthful.

That we may not be entirely un-English, we must just mention our pretty mountain-ash, its white flowers, feathery leaves, and brilliant red berries. It belongs to the same family as apples and pears, and has, like them, five pistils. The Scots call it rowan, and used to believe it had many virtues, and that a sprig of it would protect them from many strange evils.

The creamy meadow-sweet, otherwise prettily called Queen of the Meadow, must be mentioned here. The meadow-sweet has a very pretty, irregular corymb, and is particularly pretty mixed with willow-herb, and purple loose-strife. There is a garden kind of meadow-sweet, about which I have another pleasant school-child story to tell you:—

We had once a girl, who had a very pleasant, quick, obliging way, an honest face, and good temper, that made us like her very much. We took a great deal of pains with her, and I do believe she was very fond of us; but, after a time, she grew careless and idle, did not do well in her first place, and we lost sight of her. After a long time, her two little sisters came to school one Sunday, each with a very large nosegay of flowers, that evidently came from no garden of theirs, and which they triumphantly gave to us. We asked about them, and found that our old friend was now in service at a gardener's, had come home for a Sunday, and

had got leave to bring these beautiful flowers, which she sent to us. The part of the nosegay we chiefly admired was this meadow-sweet, and a little while after, to our great surprise, the little girls brought us a present of a root, which their sister had begged from her master. You will guess, after this, that she had conquered her idleness, and was going on very well ; and, I am glad to tell you, that I have heard nothing but good of her since, nothing to spoil the pleasure her meadow-sweet gives me every year when I see its cream-coloured blossoms.

I believe I have already explained to you the difference between the wholesome twelfth class Icosandria, and the poisonous thirteenth, Polyandria. Both have a greater number of stamens, but those of the twelfth grow on the calyx—those of the thirteenth on the germ.

We must not pass by the poppies, the only English scarlet flowers except the pimpernel. They show us the characteristics of the class very plainly, their calyx falling off when the flower unfolds, the multitudinous stamens with purple anthers, clustered round the foot of the great urn of a pistil, the stigma so beautifully ornamented with rays coming out from one centre, and lifting itself up upon little supports like the lid of the urn, when the seed is ripe. Poppies are as poisonous as any of their tribe, and cause a heavy slumber, for which reason they are considered as emblems of sleep. Opium is a medicine prepared from a yellow-white, or purple poppy that grows in the east. It is very useful in lulling severe pain, and producing sleep in bad illnesses ; but the Turks and Chinese are so foolish as to take it without being ill, because they like it to confuse their minds, and send them into a sort of

heavy trance or day-dream. I am afraid some people even in England do the same, in hopes of forgetting their troubles; but this is a very bad plan, as it stupifies their senses, and hurts their health. Besides, they ought to know that God sends troubles that they may do us good, not that we should try to forget them.

By the sea-side we may find horned poppies, which, instead of an urn, have long pods shaped like horns, and in the corn-fields, now and then, the bright little red and purple pheasant eye, well named, for the colouring is very like that of the beautiful eye of the cock pheasant.

Who knows the glory of the river and pool, the great white Water-Lily? It is our largest native flower; and magnificent to behold are the thick solid white petals, and long firm anthers within them. By day it rises above the water, spreads at noon, closes with evening, and by night it draws its white cups to be refreshed and sheltered beneath the surface of the stream, where its large flat heart-shaped leaves are always floating, sustained as they are by corkscrew stems, that lengthen or contract according to the depth of the water, so that the leaf may always be upon the surface. The yellow water-lily is smaller and less common than the white one, and not quite so beautiful.

There is a very grand kind of yellow or red water-lily that grows in Egypt and India, and blossoms at the time of the inundations of their rivers. It is called the Lotus, and was highly honoured by the old Egyptian idolaters, as it still is by the Hindoos. The largest of lilies is the *Victoria Regia*, a great white South American flower, growing in the river of the Amazon, and the leaves so large and solid that a child can walk on them. A few are grown in England

in houses so warm you could hardly bear them, and always in hot-water ponds.

The lime tree is another of this class, though it does not seem to be very closely related. So are the pretty yellow cistuses that twist about on thymy banks, looking so cheerful and smiling, their five petals as frail as those of their handsome relative from Cyprus, the Gum-Cistus, so beautifully painted, each white petal shading into yellow, and dashed with deep red so regularly, as to form a pentagonal star when the flower opens in early morning, before the fierce heat of the sun has faded it. I once told you of that pretty lawn, shut in with trees, giving such pleasant peeps of the arm of the sea beyond, where we used to watch the boats glide past, with their sails white or red. There used to be a gum-cistus in the middle, and I shall never forget one sunny morning before breakfast, when I, a very little child, was standing there with my dear godfather, and showing him how all yesterday's cistuses were lying snowed down, and faded on the grass; and he answered me that everything here faded and passed away, like the flowers and the boats, and we should pass away too. I thought it very strange and sad then, and would fain have forgotten it; but it always came back with the remembrance of the boats, or the sight of the cistus, and now I see that he did not mean it sadly.

The great crimson two-pistilled peony, and the pink and blue larkspurs, belong to the many-stamened race, as well as the handsome bee-larkspur, so called because it looks as if a black bee had settled on each blossom. Larkspurs are wild in Greece, and that other old-fashioned flower, the Monkshood, comes from the Alps. The little dark grey cowl, is a very good

reason for its name. It grows so freely, that it has run wild in England; but not so the columbine, which I believe to be a native flower made into a garden one. It is an especial favourite with me, for the beauty of its form; it has no calyx, but five purple, or pink-spreading petals, set on alternately with five nectaries, each with a little spur curved downwards, all shutting in from thirty to forty stamens, and five germs, the flowers hanging down like bells from a tall stalk that rises among spreading bluish pinnate leaves. The nectaries are the special beauty of the flower, shaped exactly, to my mind, like an Indian slipper, with the toe turned up in a point, and no heel. Others, however, think them like five little doves drinking, with the petals for wings; and thus the flower received its name of columbine, from the Latin name, Columba, a dove. Others, again, made the five doves into eagles, and calling it *Aquilegia*, from *Aquila*, an eagle; but slippers, doves, or eagles, there are the pretty nectaries, purple, pink, or white, and I hope you will make acquaintance with them next summer, if you don't know them already. The only white one I ever knew is in our garden, and I have a great liking for it. Shall I tell you why? Because a little school-girl dug it up in the woods, and brought it to me, after I had admired its blossom in one of her "Sunday nosegays."

The yellow meadow-rue is of this class, and so is the clematis, a climbing plant, of which there is one very handsome garden kind. There is no corolla, but in this sort, the calyx is very large and purple. The seeds are very numerous, and each has a long silky tail. The stems twist and twine, and hang in masses, and thus the Latin name *clematis*, means a vine-



shoot. The most common garden sort has a white calyx, and is called Virgin's bower; it makes a very pretty shelter for a garden-gate, or climbs over an arbour, looking like a modest, cool screen. The pleasantest of the family is our own Englishman, the Traveller's-joy; is not that a nice name for this graceful climber? which especially delights in hedges, "by the dusty way-side drear," scrambling over them, and putting out such profusion of its greenish white blossoms, to freshen them up when the early summer-flowers are over. On it holds, through all the autumn, and when its seeds begin to ripen, out they hang their long white silk feathers, till the whole plant is like a white whig, or as we country folks call it, "old man's beard." It really is like the hedges putting on hoary locks for the old age of the year. Old man's beard grows to a great age and size. I am almost afraid to say what an immense cable of it, fairly turned into wood, I have seen hanging from one old crooked thorn to another.

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## CHAPTER XXIII.

### CLASS XV.—CRUCIFORM FLOWERS.

FROM plants arranged by the *number* of their stamens, we go to those whose class is settled according to their *length*.

If you look back to the seventh chapter, among the last bells of summer, you will find an account of class xiv., by the name of Labiate Flowers. It always has four stamens, one pair long, and one pair short, and the corolla is always arranged so as to cover them in a helmet shape, with its single petal.

The next, class xv., contains a great number of flowers, all exactly of the same shape, and that shape one that we regard with the same kind of honour as the trefoil, namely, the cross. These cross-shaped, or cruciform flowers, well deserve the mark set on them; for though in general they are not noted for their beauty, they are some of our most valuable plants, and not one of the whole tribe is unwholesome.

It will be best to begin with the largest of the race, as the parts can be seen in them more distinctly. They are of the few that are cultivated for the sake of their blossoms, though they only become prized in gardens, when their cross-shape has been destroyed by doubling the petals, so that they will never produce seed. And here a thought comes into my head, that if a Christian seeks after the admiration of this world, he tries to win it by hiding his cross, and making the most of such of his gifts as are indeed showy, but were meant to shelter and aid the good seed within, not to ruin and starve it.

These cross-shaped flowers are the wall-flower and the stock. If you live in an old town, or near some grey ruin, you will be sure to see the yellow crosses of the wall-flower waving where perhaps St. George's red-cross pennon streamed in former times, or if you have a garden at all, I think you cannot fail to have a single wall-flower in it. You see it has four petals spreading out in a very prettily shaped cross, much like that which the knights of St. John used to wear on their mantles. Pull out one of these petals, and you find that it is suddenly narrowed into a colourless strip, which fastens it to the bottom of the deep cup-shaped calyx, consisting of four leaflets. Within are six stamens, four long, and two short, so unlike those of the sixth class, that-you could never take one of

these cruciform flowers for one of the lily race; and in the middle we find a pistil, a very long and narrow germ, very short style, and a little two-cleft stigma. These parts you will find in every one of the fifteenth class, cruciform corolla, four long, and two short stamens, and a single pistil. In about half of them the germ becomes a silicle, not very unlike the pea-pod in shape, but always different in two respects, that whereas the seeds of the butterfly-flowers are fastened to the same side of the case all the way down, those of the cruciform plants are fixed by turns to each side, and the reason of this is, that when the pod opens to shed its seed, it splits only on one side, from top to bottom, while the silicle separates at the bottom, the side of the seed-vessel curls up with its own share of seeds, and the stigma at the top alone holds them together.

When taken down from its wall, and grown in good soil, the wall-flower becomes much larger, and spots of deep red (the colour of the calyx) spread on its petals. In time it is doubled, and entirely red, and becomes a very handsome flower, under the name of bloody-warrior, the glory of old English gardens, and the great ornament of May-garlands. There are yellow and pink varieties, but none so noble-looking as the old-fashioned bloody-warrior, his head nodding with the weight of its numerous dark double blossoms.

No one can rival him but his cousin the stock, or July flower, as it is sometimes called, a grand sight in its full splendour of crimson, or white double blossoms. There is a little wild English stock, but I believe the parent of all these handsome varieties came from Germany.

Of the cruciform plants in our gardens, there is one race, however, far more important—nay, which give

their name to gardens in Scotland, and which, according to their date, may claim precedence over the potatoe. They have yellow blossoms when they are allowed to flower at all, but this is not by any means what is required of them. Of one or two kinds we do indeed eat the young blossom buds, but for the most part we chiefly value the leaves and the roots.

This race is that properly known as colewort, in Scotland, kail. One kind, which bears large leaves, veined with fleshy foot-stalks, was coaxed into doubling leaf over leaf, in a large round solid leaf-bud, white within, and this, on its very short thick stumpy stem, in many a row in the garden, is called—need I tell you what? Another variety reddened its leaves to a beautiful deep crimson. Another learnt to form immense heads of little young blossom buds, pressed close together, and whitened by the shade of the embracing leaves; another shot out smaller heads of these same buds, more dispersed, less shaded, and therefore greener.

Pigs and ducks, white butterflies, and children, say what are the names of these varieties of the brassica, or colewort. I dare say you little knew how closely were related your friends the cabbage, cauliflower, and broccoli, or what part it is of the last two that you eat. In Germany, the cabbage is thought so entirely the chief herb, that it is called kraut, the word for a vegetable, and there a preparation is made with it, which would not be at all to our taste. It is kept in a tub, till it becomes what we should consider fit for the pigs, but the Germans think it excellent, and feast on it under the name of sour-kraut. Another colewort has lately been brought from Germany, under the name of kohlrabbi, which swells its stem, a little way above ground, into a great purple excrescence, like a fruit, of which

cattle in some places are said to be very fond. But there is another, far better known, which makes the same sort of swelling under ground, hanging small fibrous roots down from it.

Do you know it? Grown in gardens ; it is very good food for ourselves, especially in broth, or with boiled meat ; it is not at all bad eaten raw, and it can also, upon occasion, be hollowed out into a lantern. In fields, it is cultivated for the winter food of cows ; and everyone has seen a flock of sheep slowly progressing across a great field, shut in by their hurdles till they have properly finished the allotted portion for the day, and left nothing but a few hollow old shells, in which however the life is so strong, that uprooted as they lie, the first warmth and damp of spring will make them shoot out green leaves. Even piles which have been housed, far from soil and light, put forth young shoots in spring, which some people think particularly good. The reason they sprout thus readily, is the quantity of nourishment contained in that moist fleshy part of the stem, which we call the turnip. They sometimes grow very large ; and I have heard of an agricultural dinner in Norfolk, where the pride of the farmers is to have small cattle and large turnips, at which a round of beef was served up, enclosed within a huge turnip.

The radish comes next in order after the turnip, and most children who have had a little garden of their own, have pleasant recollections of sowing the seed, thinning the pretty young plants, and ending by filling a plate with the beautiful crimson taper roots, so shining and polished in water, so ornamental when disposed in the rays of a circle, and so crisp and pungent to the taste.

I dare say the mustard grew next to the radish in

those little beds, and perhaps you might have sown it so as to form your initials, so as to see them springing up in tender green on the brown earth. It will grow almost anywhere, even upon flannel, or a cork, floating in a soup-plate of water, where, I think, you would be amused to watch the stem and root burst forth from the seed. It will teach you the constant law, that every seed puts out a root downwards, and a stem upwards. Turn it upside down as you may, stem will always be up, root always down. A different species of mustard is grown at Durham and Tewkesbury, whose seeds are made into that pungent compound which often brings tears into the eyes of those who sting themselves a little more than they intended. The mustard has a yellow cruciform flower.

Water-cresses, growing cool and sheltered in clear running streams, have a very small white blossom. I don't think country people care so much about them as dwellers in towns, to whom their fresh green dampness is a treat. It is pleasant to think how often a few pence may have been earned in time of sore need by some good little water-cress gatherer.

Almost all the cruciform plants have white or yellow blossoms, and very few have such as make any show. There is certainly the purple rocket in gardens; and wild, we have that flower which we prize for showing its silver cross so early in spring, the cardamine, or lady's smock, or, as some call it, the cuckoo flower, because it is scattered so freely over the meadows just when the cuckoo sings.

Hedge-mustard, also called Jack-by-the-hedge, or sauce-alone, is a tall plant, with flat heads of very small white flowers and large leaves, that leave a very unpleasant smell on the hands of those who touch it. It

looks best late in autumn, when its thin, brown, transparent silicles stand high in the hedge, lighted up by the setting sun, as if nothing, however humble, that has done its work well, was to be left without some glory.

Another division of cruciform flowers do not bear the long pod-like silicle, but have seed-vessels of various shapes, some of them very pretty, such as the little hearts of the tiny shepherd's-purse, which open on each side to let out their treasure. It has a very small white flower, and is now regarded in gardens as a troublesome weed, though it was once esteemed as good for medicine. Another of the same genus, the treacle-mustard, has a long spike of seed-vessels, rounded at the top, and turned upwards in a curious manner on their stems.

Two more deserve mention, the candy-tuft in our gardens, which comes from southern Europe, and the tall lilac honesty, sometimes called moonwort, from the circular form of its great flat seed-vessels—perfect shields, to guard the plant, I suppose, in rendering to earth its honest tribute of seed, in return for summer moisture.

Most of this sober and estimable, though far from brilliant family, are annual; not one has wood or bark like a tree, and scarcely one genus will live out of temperate climates.

## CHAPTER XXIV.

## CLASS XVI.—BROTHERHOODS OF STAMENS.

THE next three classes are arranged according to the parcels, or brotherhoods, into which their stamens are divided. The first of these, class xvi., or “one brotherhood,” has all its stamens united into one column round the pistil, the filaments having grown together at their base, and only separating so as to hang out their numerous anthers.

There are several very interesting plants belonging to this tribe, and the first which we will mention, because it has the fewest anthers, is one that has a glorious name, the beautiful Passion Flower. It is a South American plant, but will grow freely in England, so that even cottage walls may be wreathed with its climbing stems, twisting tendrils, and hand-like leaves. It is so curious, that I will give you a close description of it, which you may compare with the flower when it is in blossom. The calyx does not, as usual, form the bud; there are three large pale leaves, or bracts, just outside, which fold over the blossom and hide its mysteries till they are ready to unclose. Within these are the corolla and calyx, each consisting of five divisions, and so much of the same colour, that we should take them all alike for petals, if botanists did not tell us to think otherwise; the calyx leaflets may be distinguished from the petals by an odd little horn growing on the back of each. Within is the especial glory of the flower, a circle of fleshy threads, spreading



out like rays, and marked with brilliant blue, black, crimson, and white. Some sorts have ring within ring, growing gradually shorter, till they end round the column in the centre, where on one stem, as it may be called, grow both stamens and pistils, five yellow anthers, arranged in a circle, and not, like other anthers, opening their boxes of pollen downwards, but holding them upwards. Why is this? How is the pollen to reach the germ, if it is not as usual poured down? Behold, it is one of the beautiful contrivances in nature! The germ is above the anther-box, instead of below; it is a little swelling on the top of the column, bearing three large, round-headed stigmas, and in time will become a fleshy, egg-shaped, orange-coloured fruit, containing a number of seeds. Here, it does not often ripen, and would not be very good if it did; but in its native home it is much esteemed, and called the Grenadilla, or little pomegranate.

But the Spaniards, who first gave it the name, saw more in it than its use to man, or its beauty and curious structure. They deemed that a banner of the Redemption had been planted by the Maker Himself, where no Christian had set foot, as if in promise that the West as well as the East should hear the tidings of salvation. On the roofs of churches, or on shields borne by carved angels, we often see represented the instruments of the Passion of our Blessed Lord, the pillar where He was scourged, the crown of thorns, the nails that rent His flesh, and the five bleeding wounds with which He was pierced; and the parts of this flower reminded those who named it of these representations. The column within the flower they called the pillar; the three stigmas, the nails; the five stamens, the wounds; and in the leaves and tendrils they saw other likenesses.

It was a very beautiful thought, and, no doubt, helped many to pious recollections; but remember one thing, these resemblances must not be talked of lightly, or in play, or you had better never have been told of them at all. Look at the flower by yourself, and think of the meanings gravely, or show them to any friend who is in earnest and reverent; but never chatter idly about them, as if they were only something strange and curious.

The next of these plants, with brotherly stamens, are the cranes'-bills. These follow the old rule of five: five leaflets to the calyx, five heart-shaped petals, five long and five short stamens, all closely joined round the five-furrowed germ, five slender united styles, and graceful stigmas. They are called cranes'-bills from their seed-vessel, from which the styles project in one long, brown, dry point, like the beak of a bird, until, becoming quite ripe, they curl up, and open the germ, whence the seed leaps out with a pop.

Their petals are most beautifully veined with little vessels through which they breathe, that is, let the air pass. All corollas have these vessels, but they are more evident in the cranes'-bills than in most others, because the texture is peculiarly delicate. The commonest of all these is Herb Robert, the pink crane's-bill that grows in every hedge in autumn, putting out a pretty veined flower, that sometimes is confused under the general name of Robin, with the two lychnises of the tenth class, Ragged Robin, and meadow campion, though a little observation will soon show the difference. Herb Robert is much more delicate than either, and has always a bright red stem, and leaves much cut and divided. The dove's-foot crane's-bill, which creeps about in the dusty way-sides, has a still more elaborately

divided leaf; I would defy the cleverest cutter of lace paper to make anything so prettily-formed as its branching leaves. The flower is very small, and pale pink, and has a smell of Indian ink. The beautiful pencilled crane's-bill is larger; it is white, and its veins are marked with delicate streaks of lilac, while its stigmas form a beautiful tuft; but the handsomest of all is the great purple meadow crane's-bill, which is to be found in profusion in the northern and midland parts of England, though in the south it will only grow in gardens.

The Latin name of the crane's-bill is *Geranium*, and this was at first given to certain beautiful large cranes'-bills that were brought from the Cape, but afterwards botanists considered that the cottony wings of the seeds of the foreigners deserved to be made into another genus, which they called *Pelargonium*. However, the plants had become such household friends, that homely people could not bring themselves to the new name, so to this day we commonly call them geraniums. I know nothing about their fine names, nor of the new sorts that gardeners are always raising from seed, and sending to shows. They are very grand, no doubt, especially those that are sometimes exhibited at Chiswick, as large as a currant bush, and covered with blossoms all round; but what I like, and look upon as home friends and pets, are the precious old plants that have stood for years and years in some window, prized, perhaps, for the sake of the giver, or the old home from which they have been brought, and, it may be, watered and tended almost like children by some feeble old lady who has hardly strength to totter from one flower-pot to another, to pull off their fragrant leaves as soon as they have once shown a faded edge of yellow. Or perhaps one geranium plant is the companion and

friend of some hard-working girl, who keeps it in her town window to put her in mind of the green leaves and kind friends she left far away in the country. Those are the really choice *geraneys*, as the children call them, far choicer than the new varieties that are only cared for because they are *new* and scarce. Yet I will not say that it is not a very nice pleasure in gardening to sow the seeds, and watch whether they will come up some different kind, or the old original sort, to which nine out of ten will return, though chosen from very different plants.

The oldest kinds, from which all the rest have sprung, are, I believe, the nutmeg geranium, a very sweet-smelling one, the two upper petals red, and the lower, white and streaked; the oak-leaved, which has a very deeply-lobed leaf, and a white blossom, spotted with deep rich purple on the upper petals, though not nearly so large as that fine, white, purple-marked kind, which I admire the most of all the new ones; and lastly, the dear old horse-shoe, or scarlet geranium. This everyone knows, for its dazzling head of brilliant blossoms, and that most delicious of all leaves, so soft, so downy, so elegantly shaped and cut, and so gracefully marked with the dark line. Even grand gardeners cannot do without it; they train it to the top of their hot-houses, or pin it down in flower-beds, so as to make it form one sheet of scarlet, almost too bright to look at.

The other brotherhoods are much larger families; so many as to be beyond counting, but as closely joined as ever. The largest of these that we often see, is the tall holyoak, a grand-looking plant brought from China, and spiring up almost like a tree, with large leaves below, and handsome great red, yellow, or white flowers on a long spike, or even of a very dark colour, which is

sometimes called black, but only by way of a boast. I have never been able to find out the reason of the name, holyoak ; I am inclined to believe it is two or three Chinese words run together. The tuft of anthers and stigmas are very handsome when the flower has not been doubled, and all grow out of a sort of rounded, yet flattish germ. When the flower is faded, the tuft shrivels up, and the germ, packed up in the five calyx-leaflets, swells into a shape a good deal like a large button, which some children call a cheese. If cut in two, the parts are so regularly arranged, as to be like a star.

Children like to eat the cheeses of our English mallow, which is nearly related to the holyoak, and the plant used to be much esteemed for use in medicine, mallow leaves being thought very healing. We have three wild sorts—the common, a lilac, striped darkly ; the musk mallow, a pretty pale-pink, its leaves much divided ; and the dwarf, white, striped with lilac, much haunting dusty way-sides. There is a handsome garden flower called the Malope, a very dark crimson, coming from the Mauritius ; a shrub called the Althea ; and a genus named Hibiscus, to which belongs a great favourite of mine, the African Hibiscus, called Black-eyed Susan, a primrose-coloured flower, with a very deep dark eye. The seeds of this genus do not grow into cheeses, but are round, and enclosed within a case. All the tribe love sunshine, and shut up their petals at night, or in bad weather.

## CHAPTER XXV.

CLASS XVI.—BROTHERHOODS OF STAMENS—*continued.*

WE must not leave this class till we have mentioned two plants that we have never seen, though none, except the wheat, are of such daily use to us. I dare say you scarcely have a garment on, at this moment, some part of which is not composed of the first of these. The cotton-plant, I mean, the plant which caused the first Phœnicians, who sailed round the Cape, to be taken for deceivers, when they reported that they had seen wool growing on trees, as well as the sun in the north at noon-day. We perceive in these days, that this report of the voyage is the very proof that they had really gone where they professed.

The cotton-plant is a shrub which naturally grows to be about eight or ten feet high; but where it is grown for use, it is kept down to the height of a currant bush. There are thirteen different kinds, one of which is a creeper, and another a tree; but the most useful sort is the shrub. It bears a pretty yellow flower, with a dark eye, and this gives place to a pod, where the seeds are embedded in the soft white substance, which we call cotton-wool. You know it, I dare say, and keep your treasures in it, your tender shells, or little glass curiosities; or you peep in at brooches lying on a bed of it; or, possibly, if you ever scalded or burnt your finger, it has been packed up in it to keep out the air. This cotton-wool has, however, been carefully cleaned, and all the seeds picked out; I have seen some as it came fresh from the pod, looking

much rougher, and less white. Perhaps, however, this acquired its dirt in the packing, for it comes to England in great canvass sacks, two or three yards long, and more than a yard in width. A man gets into this great bag, which is kept open by being fastened to posts, and is supplied with cotton, which he treads down as hard as possible, trampling on it, and forcing it into every corner, till he rises gradually on it to the top, and light as cotton is, one bag holds three or four hundred pounds.

Cotton is grown in almost every hot country ; in so many indeed, that it is not worth while to count them up. It is manufactured in great quantities in England, and those children are happy who have only to do with the wearing, instead of the spinning and weaving. In former times, poor children were dreadfully overworked, and though much has been done by law to prevent them from being kept in the cotton-mills for too many hours a day, it must be a sad thing to live in the din of machinery, and in close narrow streets, instead of pleasant country homes. However, we know—

“ That Love’s a flower that will not die  
 For lack of leafy screen ;  
 And Christian hope may cheer the eye  
 That ne’er saw vernal green.”

And there is nothing *really* to prevent a manufacturing child from being as good as a country child ought to be, though there are, I am afraid, many more temptations in its way.

It is only within the last fifty years that cotton has become so cheap and common ; and it is a very good thing in one way, since no one has any excuse now for not being clean, as they had when there was nothing but linen, which, though stronger and better, cannot

be made so cheaply. Ask any elderly person to tell you the price that Sunday dresses used to be, and it will surprise you, though you will generally hear them say, at the same time, that those gowns would wear out half-a-dozen of such as we have now. And they were certainly much prettier and better printed, as old patch-work will testify. I could show you *such* roses, and *such* a choice pattern of strange, indescribable things, which I have studied many an hour before it was time to get up; besides the old inherited scraps that are still kept in a bag, where they were long ago stored, as too beautiful and precious to be cut or used.

India was the first place where cotton was much used for clothing, as the name of calico, from the town of Calicut, reminds us; while muslin was named from Mosul, on the Tigris. Though we make muslins here, they are still not equal to those which are woven in India, by men with a hand-loom; and afterwards embroidered, likewise by men, who walk about with the delicate muslin rolled round their body, and often so begrimed, that it is wonderful how it can ever be made clean again. The Indian princes wear turbans of muslin so fine, and of such a length, that it takes twenty years to make one; and as to their wives, they expect their muslin robes to be of so fine a texture, that the whole dress can be drawn through a ring.

Last of all these brotherly plants, we must speak of tea. Everyone knows whence it comes, so I will not stop to tell that. It is a shrubby plant, with a pale pink blossom, and is grown in great plantations. The young leaves, when they are first put out in spring, are gathered carefully, and no one is allowed to use these



but the emperor himself. The next crop, the Chinese keep for themselves, and only sell us the coarser leaves, which they gather at the time of the grand stripping of the trees. Then not a leaf is left, and as some of the trees grow wild, out of reach, on the mountains, the cunning Chinese have a way of getting at them which you would never have guessed at. There are plenty of monkeys in those hills, and the Chinese go out and pelt them with sticks and stones, which so provokes them, that they break off boughs of the tea trees to return the compliment to the men, who gladly pick up the prize and strip off the leaves.

The leaves are brought into the shrivelled, twisted state in which we have them, by being laid on hot plates over a furnace. It has always been a question whether the green and black teas are really different sorts, or whether the green is coloured by being dried on copper plates, or by some colouring matter. I believe the truth is, that there is a real green kind, but that it is rare, and they generally sell us the false, painted green tea.

For their own use, they make the tea up into balls, or fagots of small twisted sticks, and instead of using a tea-pot, they put one of these little parcels into a cup, and pour boiling water over it. The cups are often of beautiful porcelain, each in a fillagree gold and silver case. They use no milk nor sugar with it, and a tray of these pretty little cups of strong tea is carried round to welcome every visitor.

As to the old tea leaves, they make them up in the shape of bricks, and sell them to the Tartars, and though this is poor stuff, it is the best the Tartars can get, and they are so fond of it as to be ready to take it in payment for anything they sell to the Chinese.

It was not till very modern days that tea was known in Europe. Mary Beatrice, the wife of James II., was the first of our queens who drank tea; and it was only a treat among great ladies for a long time. In common, people breakfasted on beer or such strong drinks, or else on milk-porridge; and there are many stories of ladies, in the country, not knowing what to do with the first tea they saw: how one boiled a whole pound, and tried to eat the leaves with butter and salt; and another tried boiling it in milk, and throwing away the liquor, while she, too, thought the leaves the part to be used.

And now, it would hardly seem like a real morning or evening meal without the tea-pot; the labourer takes his bottle of cold tea into the harvest field; and the old woman in her cottage has the tea-pot on the table, and the kettle on the fire, all day long. Nay, "tea" is a name that marks the hour of the day, and the tea-table is the very centre of home, when families are most apt to be all together, all resting, and all at ease, and if there is one absent, it is the very time to be missed. Or if one is unwell and up-stairs, what a time it is for friendly messages and attendance; and how happy and important some little nurse feels in taking that first lesson in steadiness and trustworthiness, the carrying the full cup, step after step, without one drop spilling over.

And shall we say anything to school children about tea-drinkings? Oh! we have said too much already to enter on those delights!

## CHAPTER XXVI.

## CLASS XVIII.—ORANGES.

THE butterfly-flowers form the seventeenth class, which have their stamens in two brotherhoods, or more properly, all the filaments form but one party, except a single one, which remains separate, in order that the pod may have room to grow. As we went through the butterfly race before, we need say no more about them now, but go on to the next, class xviii., the many brotherhoods.

There is only one English genus belonging to this class, namely, the St. John's worts, so called because they blossom about St. John's Day, at Midsummer. The largest species is called Park leaves, and raises its handsome head above a long straight stem, clothed with leaves in regular alternate pairs, in almost every shrubbery; the next largest, named Tutsan, from the French word *Toute-sain*, all-heal, grows wild by the sides of woods, and has a blossom about the size of a primrose. The lesser kinds grow on every hedgerow, heath, and wood. All have brilliant yellow blossoms, divided into five petals, a larger swelling germ, crowned by three stigmas, and an infinite number of stamens, joined together at the bottom in little tufts or bunches, so that you cannot pull out one without the rest of the family. They hold together, as the old man in the fable taught his sons to do, by the example of the fagot of sticks; and the hair-like filaments crowned with dots spread out their multitude, like a glory round the flower. The fruit is a red berry of a conical shape, which you may

often see in the tutsan, and which stains the fingers so red, that the old English name of the plant was man's blood. The leaves are very curious, as you will see if you hold them up to the light. They are full of very small dots, just like little holes; indeed, one kind is actually called the perforated St. John's wort; but these are not really holes, only little vessels filled with oil, which gives out a strong smell if you rub the leaf.

This perforated St. John's wort is a very pretty plant, much more slender and graceful than the square St. John's wort, known by its very hard square stem. The small upright kind is the especial beauty, growing on heaths, like a little golden star or spangle, on its slight crimson stem; perhaps, if late in autumn, bearing a small red fruit. Nor is the creeping kind to be despised, as it twists and stretches over wettish places, though not so deep in the bog as the next sort, the marsh St. John's wort, which never opens its blossoms wide, and has rough leaves, so unlike the other kinds, that it is not at first easy to tell that it belongs to the same genus, all the rest having their character so strongly marked.

The only other genus to be mentioned in the eighteenth class is not English. It is the citron, or orange family, and is not even European by nature. Such of you as know anything will be surprised at this, for you hear of Lisbon oranges, and Seville oranges, and Malta oranges, and, perhaps, even of the orange groves of Spain and Italy. But though old books have told us pretty clearly all that the Greeks and Romans ate and drank, and we know how the Romans brought their corn from Sicily, and their wine from Falernæ, and even their oysters from Britain, we never hear anything about oranges. Now and then, indeed, there

is some hint of golden apples. It was a golden apple, according to the fable, that was to be given to the fairest of the three goddesses. Golden apples were said to grow in the gardens of the Hesperides, beyond Mount Atlas, and in the race between a youth and the swiftest maiden upon earth, she was turned from her course by the golden apples which he threw down before her. Who knows if some stray orange had not come in the sight of the Greeks to cause these stories? either brought by the Arabs from its native home in China, or by some bold Phœnician mariner from the Fortunate Isles in the western ocean, about which they had many strange stories, and which we call the Canaries. Orange trees were growing there before the Portuguese visited them, and some of the best in the world grow there now, round the base of that great sugar-loaf, the Peak of Teneriffe, which I should guess to be one of the most beautiful places in the world. The best oranges for eating that we get, come from St. Michael's, a little island of the Azores; but there are many others imported from Spain and Portugal. The red-juiced blood oranges grow in Malta, and the delicious, fragrant little Mandarin orange, is chiefly grown at Tangier. To all these places they were first brought in the 14th or 15th centuries from China, their original birth-place.

I suppose there is not an English child who does not know the taste of an orange, but very few know the appearance of an orange tree, for only a few are grown in hot-houses, and not many children can go to see them there. However, if you wish to see what sort of leaves it has, you need only sow the pips of the next orange you eat, in a pot of earth, and keep it all the winter in the window of a room with a fire in it,

and in time you will see it raise a shoot, with handsome, dark-green, polished leaves, evergreen, and like the St. John's wort, full of little vessels of oil, where resides the delightful scent. I once raised three little orange trees from pips, and kept one of them some years till it was a foot high; then I gave it to a lady who had a green-house, and I don't know what became of it afterwards. Orange trees are very beautiful in the warm climates that suit them; they grow higher than an apple tree, and spread out their rich dark-green foliage, mixed with the white flower. The calyx is a little cup with five teeth; the corolla is in five white petals, fleshy, full of vessels of fragrant oil, and sometimes dotted with green; the stamens are not many, but grow united into little bundles out of a ring round the base of the round swelling germ. The stigma is green, and the anthers bright yellow, and altogether the whole appearance of the flower, with its sweet odour, has something wonderfully delightful about it. In some places, where it grows commonly, a wreath of the natural flowers is worn over the bride's veil at her marriage.

As soon as the white blossoms fade, the little cells of the germ begin to grow, and the whole germ, losing its stigma, becomes a round green ball, taking a whole year to come to perfection, and hanging on the tree long after it is ripe, so that it is the especial beauty of this exquisite tree to bear, all at once, the white flowers, with the green and the golden fruit, its promise and performance both visible together.

No wonder the orange is so long in growing, for there is a whole workshop within its case, and you can see for yourself the result of all the strange things that happen there. The rind, full of little bags of oil, loosens

and separates itself, while a thick white coat grows up within it, the cells, containing the seeds, enlarge; and not only this, but there grow forward, into them, a number of very small bags, or bottles, each filled with pulp, which, as the fruit ripens, becomes juice, first very sour, then sweeter. What is the use, you will say, of this juice being parted into so many little bags? It is another proof of the wisdom of the Hand that made the orange; such, that it may be carried long distances, and brought to be the refreshment of thirsty lips, so many miles from the sun that ripens it. Why does the bee store its honey in such little cells? Do you know? Perhaps you will say its suits the bee to have store-houses no bigger than itself, and so it does; but do you know what happens when honey is put away in large jars? If the weather be warm, it ferments and turns sour, but though the bee-hive is a very hot place, the honey never ferments in its own little six-sided jars. So it is with the orange, its juice, if it were all together, would soon be spoilt by the heat, but in these separate bottles it is safely secured, a little in one and a little in the other, and kept good till we want it. The cells are the cloves of the orange into which our fingers can divide it; the bags are the fine net-work within them, much more easily discerned in a bad orange than in a good one. The actual seeds everyone knows; but does it not show that oranges were made for our especial benefit, that there should be so many without pips, so as to be of no use at all, excepting for food? Another arrangement, to fit the orange for travelling long distances, is the oil in the little dots in the peel, which keeps it fresh, though separated from the tree, as well as the thick, strong, yellow coat, lined with white, so much less tender than the covering of apples, pears, plums, or such fruits as are eaten on the spot.

Thus you see how our Father's gracious Providence has made this delicious fruit such as can be spread over the whole earth, eaten in this country even more universally than our native fruits, and more refreshing, perhaps, than any other. Who that has ever been ill does not remember the pleasant, juicy, sharp sweetness, coming so refreshingly, or the delicious taste of the orange squeezed into water, the nicest of all drinks? I am sure, if people would only think a little, they would see that the commonness and cheapness of the orange, is a thing to be very thankful for, prepared as it is for our use and delight.

Delight, some of you will say, who like play better than eating, and who enjoy the sight of the basket (so called,) made of the orange, or its cloves divided into a flower, or its rind turned into a bowl. By-the-by, I hope, if ever you are obliged to eat an orange without a plate, that you don't throw its rind where it may be an unpleasant sight, and perhaps the means of a bad fall.

Oranges come to England packed in large cases, which you sometimes see at fruiterers' shops, with laths bent over the top to protect them. The pale-coated, sour-juiced lemon, which gives so pleasant a flavour to puddings, grows in company with it on Mediterranean coasts; the lime, the smallest of the race, is wild in India, and its juice is most delicious. The shaddock is another Indian fruit; and there is another kind sometimes brought here, and very large and handsome, to which some thoughtless person has irreverently given the name of forbidden fruit. I hope if ever it comes in your way you will not make nonsense about its name, as I have heard of some silly people doing. Of course it has nothing to do with the real fruit of the tree of knowledge, and there is no harm in eating it, but there



is great harm in talking lightly of the sin for which every one of us is suffering.

The citron was brought to Europe from Assyria and Media, before even the orange. It is hardier, and I have seen one tree growing in the open air in a warm sunny place. It will ripen its fruit in hot-houses, and is often preserved; but the chief use of it is in its thick delicious rind, which affords such tit-bits in mince-pies, plum-puddings, and those cakes, all white outside, all dark inside, which on twelfth-days, christening-days, and wedding-days, are said by the wise to be too rich to be eaten. And well for the foolish if they are only allowed that "enough" which is "as good as a feast." No, I don't call them foolish if, of themselves, they only take enough, for to be temperate in all things is part of the highest wisdom. Happy the child who does not think the citron and the plums the best part of the feast—no, nor even the almond paste. I wonder whether you and I should agree as to what the best part of the festival is.

Of class xix. you will find an account under the name of compound flowers.

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## CHAPTER XXVII.

### CLASS. XX.—ORCHISES.

ONE of the first glad sights of merry spring are certain stars of long, narrow, pointed leaves, spreading on the ground, growing one within the other, and often ornamented by bright spots of black. By-and-bye a little bud appears in the middle, veiled in a thin silvery case. It grows and it grows, till it bursts its sheath, and uplifts a fat fleshy stem, bearing a purple spike of long-

tailed flowers, pleasant to behold in the green copse-wood among blue-bells and primroses, and brilliantly setting off the cowslips and marygolds that are apt to be the chief groundwork of May garlands.

A nice old English name for these flowers was long-purples ; but village people generally call them by the disagreeable name of dead-men's-hands, because they have a root of two long narrow tubers, (one dies, and they form a fresh one every year,) and thus most educated people know them best by their Latin name of *Orchis*. They belong to the twentieth class.

I don't think any plants, that I know, are so difficult to understand as these, but I will do my best to explain their structure, for it is very remarkable. The spike consists of a number of blossoms, each growing on what appears a thick stem, with a long purple leaf at its foot. This stem is in fact the germ ; you see it is curiously twisted, and if it was cut in two and magnified, you would find it full of young seeds. The corolla is a wonderful thing. Behind stretches a long hollow tail, a spur, as it is called ; hanging down in front a lip, a three-notched petal, beautifully streaked and spotted with white, black, and purple ; at the sides are two other petals, which seem to protect the rest, and are called the wings, and between them are three very small petals, closing together, so as to form a little helmet, the casque. The middle one of these three bends over a dark-purple thing, thick and fleshy-looking. With a magnifying-glass you can, if you have clever eyes, and fingers handy in using a pin, discover that this is divided down the middle by a sort of seam ; then pulling open the seam, you will find the purple covering is a case for two small olive-green things, shaped more like a comma than anything else. These are the pulp in which the

pollen resides, and the purple case is in fact the anther. Filament there is none, and the germ, we have seen, serving the purpose of a footstalk, while the top of its stigma forms a fleshy white cup, opening upwards under the anther. Was there ever a stranger construction? all the parts seem upside down. We should never have found them if botanists had not taught us, and here even more than in the compound flowers we should have fancied that there was neither pistil nor stamen; and which of the parts of the flower are to be called calyx, and which corolla, people are not agreed, though the wings are generally termed the calyx.

The orchises, even in the commonest forms, are the strangest of all flowers, if this wonderful structure is examined. We have several kinds, to be found almost everywhere. The earliest, with the black-spotted leaves, is the purple-orchis; and, for old friendship's sake, I like it best of all, connected as it is with May walks, and cuckoos' songs, and pleasant woods, where a little damp makes its purple spikes rise high, and densely covered, growing at a little distance apart, and luring one on through bramble and tangle in the search, and varied in endless shades of lilac, from deep dark purple to almost pink. The worst of it is, that a number of them together in water have an unpleasant smell.

A little later, the pretty little green-winged meadow-orchis springs up all over our pastures, in company with cowslips. Its wings are always pale green striped with brown, but its lip is sometimes very dark purple, sometimes very pale rose-colour, sometimes even white, and though a sturdy little plant, there is hardly a prettier May flower. In the marshy meadows, there blossoms at the same time the large, tall, noble-looking, broad-leaved-orchis, its blossoms usually rather a

red shade of the orchis purple, though varying very much. You may know it from the rest by the length and brown colour of the bracts, or leaves that grow at the foot of the germs, as well as by the breadth of the tapering leaves. Later, there follows it the aromatic-orchis, very red, very sweet, its spike very long, and its spurs of a most disproportionate length; and sometimes you may find the pyramidal-orchis, which looks as if some one had pulled all the blossoms of the aromatic-orchis up to the top of the stalk into one bunch, shaped like a half-opened mushroom, with a peak. In woods there come, at the same time, the spotted-orchis, a very pretty one, its long narrow leaves very thickly dotted with black, and its white flowers with delicate purple, and sometimes, though less commonly, the butterfly-orchis. I cannot tell why it is so called, as it is not in the least like a butterfly, though perhaps it might be compared to certain slender, delicate-looking white moths. You cannot mistake it when once you see it. It is very unlike anything but itself, and though hardly to be called beautiful, has a peculiar grace of its own, in its large, loose, airy, white spike, its long streamer-like white lips, its taper greenish wings, and very long curving spurs, twisting and crossing each other in a sort of zigzag pattern; above all, there is the pure sweet scent, which is more charming in the evening. It always seems like a lady of the woods. It is also called the honey-suckle-orchis, because of its delicious smell, a good deal like a honeysuckle; and the two-leaved-orchis, because half-way up the stem grow a pair of oval leaves, spreading one on each side. These are not true leaves, only bracts, and you see they have not the branching mid-rib and net-work, but have the long

ribbon-like veins going lengthways, as those growing from the root have; like the lily and grass-kind, and all the plants which have but one cotyledon, and shoot up in sheaths.

These are the most frequent of the true orchises, all of which have spurs. The other families of this tribe are without spurs, though other parts of the structure resemble those already described, and very curious some of them are. The tway-blade, so called from having two such oval leaves as the butterfly-orchis, grows in much the same places, but is not of the same fleshy substance. It has a four-cleft lip, that seems to hang out the sign of the little green man, with its two arms and two legs, and yellow head; but this is not near so like as the man-tway-blade, properly so called, is said to be. Of this, however, I cannot judge, since I never saw it. The bird's-nest-orchis is a very strange plant, growing under beech trees, which allow scarcely anything else to come near them, in their strong desire to keep their domain tidy, and allow no litter under their branches; but this little plant comes up under the lordly shade of their arching boughs, nay, even close to their smooth univied trunks; and as if to elude their observation, it wears the livery of their own dead leaves, and while in its full prime, is as brown—blossom, stem, and all—as if it had been dead for months. As to leaves, it attempts none, it is only glad to find sufferance for its brown petals in the deep glades of the beech-wood.

In dry pastures grow the lady's-tresses, a pretty little low plant with blossoms where the wings are pure white, and the lip green, the flowers twisting in a spiral line round the spike, and I suppose owing their name to their way of growth being in the line of the waves of a

lady's hair. I fancy this must be the flower that village children's rhyme means:—

“Daffodils and daisies,  
 Rosemary and tresses,  
 All the girls in our town  
 Must curtsey to the ladies;  
 The bushes so high, the bushes so low,  
 Please, my lady, stoop under the bough!”

The children always say it “*traisies*,” but as there is no such word, I suspect it once meant tresses. Do you know the game the rhyme belongs to? Four little girls stand together, the arms of two crossed over those of the other pair, and sing it together. When they come to the curtseying, they all curtsey, and at the stooping under the bough, the under pair bend under the arms of the others, and come within, so as to be inclosed between them, and then they all jump till they can hold together no longer.

I don't know whether you can understand this description, so we will go back to the lady's-tresses. If you find them at all, it will be in quantities; but the strange thing is, that though they are not annual, and grow in ground by no means liable to be disturbed, they show their faces only now and then; they will come up one year, and not be seen again for four or five, or else make their appearance on some lawn, where no one ever expected them.

Helleborine has long leaves and bracts, and a prettily-jagged lip. The broad-leaved kind grows in dry wood; the marsh helleborine has a white under-lip, jagged and edged with red; the large white helleborine, a great beauty, looks at first sight like a lily, but is not common.

I have kept to the last the choicest English orchideous plants, the ophrys kind, the lip of which is

arranged, as if for the very purpose of affording us sport, in forms like those of insects. Prettiest of all is the bee-ophrys, its downy, velvety, curved lip, dark brown mottled with yellow, and its pale lilac wings, streaked with green, affording a most curious likeness of a bee about to settle on a flower. They are just sufficiently rare to make the discovery of them delightful. I shall never forget the ecstasy of my first sight of one on a mossy bank, in a little copsewood dell, two bees full out, and another just coming; it was a scream of joy indeed with which I flew at it. A few more I have found; the best mine of them was an old chalk-pit, now destroyed, and now and then they are met with in dry pastures; but I suspect them of the caprices of my lady's-tresses, for where I find them one year, it is almost certain that there they will not be the next.

The fly-ophrys I have but once seen, and then it was not growing, but freshly gathered. It looked like a house-fly cut out of dark puce velvet, a blue spot on its back, and, if I remember right, with jet-black eyes. The spider-ophrys I have never seen.

But these wonders of our own do not approach to what may be seen in foreign lands, especially in South America. There grows a plant, looked on and named in the same spirit as the passion-flower, as another stamp and token of the Christian faith, set by the hands of its Author, the beautiful orchid, called by the Spaniards of Panama, the *Espiritu Santo*, because it is just like a hovering dove of the purest white, a fit emblem indeed for Whit-Sunday.

Another dove-orchid grows there likewise, a large, tall plant, with flowers like a white dove on her nest, her head turned back and her wings slightly raised and touched with purple. Another orchid is like a whole shower

of pale purple and white butterflies, coming down from a bough, and this, like many of the tribe, is a parasite; that is, it grows on the limbs of trees, like mistletoe; while there is another kind more like sticks of coral than anything else, the whole plant being of the most glowing scarlet, except the flowers, which are deep purple. These four I have seen in hot-houses, and marvelled at; there are many more that are grown in the same manner in England, and that a few lucky people are able to go and admire, but what must they not be in their own home?

Some grow from the earth; some hang down from the trees; some sit on rocks amid moss; some beautify the decaying and fallen trees, and their perfume fills the woods at night. Their forms are beyond everything astonishing. The monkey, the mosquito, the ant, are only a few of them; there are hovering birds and every wondrous shape, so that travellers declare that the life-time of an artist would be too short to give pictures of all the kinds that inhabit the valleys of Peru alone.

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## CHAPTER XXVIII.

### CLASS XXI.—DIVIDED FAMILIES.

ALL the first twenty classes of plants follow the practice we should have thought most convenient, of keeping all their parts, both stamens and pistils, in the same flower; but the three next have a strange custom of dividing them in different blossoms—one bearing all the stamens, another all the pistils. The stamen-bearing flower perishes and leaves nothing behind it,



as soon as the pollen has been scattered from it, but the pistil swells, and in time becomes fruit or seed-vessel.

The twenty-first class has these pistil and stamen-bearing flowers upon different branches of the same plant, generally the pistil-bearing growing somewhat under the stamen-bearing, that they may the more readily catch the pollen. Sometimes the fertile and barren blossoms are so much alike that we only discover the difference by peeping closely into them with botanical eyes; sometimes they are so unlike that we can hardly believe in their near relationship. Most forest trees belong to this family; and we may observe that in most cases, though not in all, the plants which have this strange arrangement are such as are not much esteemed for their fruit, and which have other means of becoming multiplied besides the seed, since its formation must be less certain than when all the parts needed for it are close together in one case instead of depending on the busy bees or the winds to bring the pollen from the anther to the germ. However, the first genus I see standing in the list makes me glad that I said in most cases, not in all, for it is the bread-fruit tree which grows in the South Sea Islands. I daresay you have wit enough to guess that the tree does not exactly bear loaves of bread ready baked; and yet it is not very unlike them, for the fruit is as large as a baby's head, and when it has been baked, and the outer rind peeled off, there is left a yellow covering like crust, and a white substance within, something like crumb. Never having seen the bread-fruit anywhere but in a print, I will pass on to a race that we all of us have seen, but whether we have noticed, depends on whether we have followed the example of eyes or of no eyes.

Those odd things called spurge are what I mean. There are two sorts which you may have often pulled up as weeds in your garden—the sun spurge, and the small spurge; both are plants of a very regular growth, their stalks full of milk wherever you break them, their leaves bluish, and their blossoms yellowish green. It is this milkiness of the plant that is the distinguishing mark of the spurges, the juice has that taste which is called acrid, and was formerly used to remove warts, from which the plant has derived the name of wart-weed. The stem is always regularly forked and branched, in some kinds almost like the umbelliferous plants. In the lesser spurge there are two regular stages of stems, springing out like spokes, and with three long narrow leaves at each starting point. The upper umbel bears from three to four little green flowers, some with very minute single stamens, others with round swelling pistils. There are pretty little yellow crescents in the flowers, which at first sight we should take for curiously-shaped anthers, but which are in reality nectaries. This small spurge has long, narrow, lance-shaped leaves; those of the sun spurge are more nearly heart-shaped, and form pretty little cups round the small flowers. There is a larger sort growing in the woods, and named the wood spurge; it is less milky, and has a red shrubby stem, very neat regular green cups, and pretty yellow crescent nectaries. It comes with the primroses and blue-bells, and looks spring-like and friendly. Another small sort is found in corn-fields, and there is one sometimes cultivated in old gardens, and called, from the regularity of its alternate leaves, Jacob's ladder, and sometimes caper. They are not a very interesting race, and I only mention them because they are so common. In the southern hemi-

sphere these spurges grow to a great size, and become forest trees, figuring in books by their Latin name of *Euphorbia*.

Some few grasses do not keep their stamens and pistils in the same blossom, and one of these is the beautiful maize, or Indian corn. Many children like to grow it in their gardens as a curiosity, so perhaps you may be able to examine it. The stamens, you see, grow in a spike of blossom, much like that of other grasses; the fertile flowers are out of sight, closely folded up in those long swelling sheaths of leaves that branch out on the sides of the stem, and from which hangs out a tassel or plume, or whatever you please to call it, of whitish green hairs, or strings. This is the wonderful arrangement for allowing the pollen to reach the germs, which otherwise it could never do, enclosed as they are in their double rolls of leaf. If you pull to pieces one of these sheaths, you will find the soft, fleshy, green receptacle, covered with odd little flowers, from each of which depends one of these long hairs, a sort of mermaid's wig. As autumn comes on, the germs harden into large round grains, either red or yellow—every one, that is to say, whose streamer has properly conducted its pollen, for on some cobs, especially near the bottom, we sometimes find that some have failed and died away. A perfect cob is a beautiful thing, with the long lines of rich amber-coloured grains, close together, and as regular as lines of beads, and the whole plant is very handsome. Some kinds are of very quick growth. In our own garden we had a giant sort, one leaf of which grew nine inches in one day. The plant was at least eight feet high, and the cobs, which had red grains, were very long and handsome. It is an American plant, and was found cultivated in Peru when it was first discovered. It served the inhabitants instead of

wheat, and was so highly honoured by them that they had in the treasures of the Temple of the Sun a figure of it, with the leaves and beard of silver, and the grains of gold. The Spaniards brought the maize home, and it is much grown all over the southern parts of the continent, where they are pleased to call it Turkish wheat. Here in England it is not used sufficiently to make it be cultivated in great quantities. The bread made from it is not as good as wheaten bread, and the chief use of it is to feed turkeys on the grains or the meal, and horses are sometimes fed on the leaves. The English horses in the Peninsular war learnt to know it well.

In America it is also extensively grown, and the harvest of large cobs in their leafy sheaths is said to be exceedingly rich-looking and beautiful. The green cobs in their unripe state are there considered as a great dainty, either raw or boiled, and both man and beast live much upon the maize flour. The picking the grains out of the cobs is a grand employment in the winter, especially for the women and children.

Those near relatives of the grasses, the sedges, and some of the reeds, belong to this class. Do you know any river or pool where grows the great bulrush, or, as the riddle says, at certain seasons it is dangerous to walk? Fine fellows are they; sometimes known by the names of cat's-tail, or reed-mace, but I like best to call them bulrushes, and you may know why in one moment, though, of course, it is not to be supposed that the little reed-woven ark where the infant prophet slept safely, as he floated among the monsters in the Nile waters, could be of the same bulrush that we see in our streams.

No monsters are found in the haunts of our bulrushes,

the dragon-flies do indeed flit round them, and settle on their long leaves, to devour their prey, but the other dwellers in their pools are all harmless. The moorhen's damp cradle is found in their shelter, the dabchick swims under their tall leaves with her tiny brood, and the water-rat dives and rises, peering round with keen black eyes.

You little girls have little chance of gathering for yourselves one of these grave mace-bearers of the armies of flags and spears. You must get some big brother, who cares little for wet, to plunge in after them; and most likely he will be glad to make a commotion among all those dwellers in the pools, and send them splashing and diving their different ways. I hope he will not forget to bring you back one of our clubs, a tall stem, long, narrow, tapering leaves, and bearing the large round mace, somewhat of the size and shape of a candle, with a wick as long as itself. Early in the season the club part, which consists in reality of the fertile flowers, is of a greenish brown, while the upper slenderer portion, which I called the wick, is covered with long anthers, growing quite close together. By August, these have scattered their pollen and withered away, leaving only their stalk, looking broken and rough, but making a good finish to the club, which has become of a very deep dark brown colour, and soft plush-like texture. By-and-bye all the little downy seeds of which it consists will break out and fly away, to sow the bulrushes of next year.

The bur reeds are to be found by banks of rivers, in places much like the haunts of the bulrush. They have branching stems, bearing a number of little balls—some all yellow, consisting of stamens—some all brown, or all green; the pistils with white stigmas, the

leaves lance-shaped, and the whole plant very handsome, often with a large black fat slug enjoying himself on the back of a leaf.

Here, too, you will find the sedges—plenty of them—for there are sixty-two English kinds, many of them very common by river-sides and in woods. You would be apt at first sight to call them grasses, but, though their first cousins, they belong to a different family, and are of no use to man, whereas grasses are most valuable.

They are known by always having a three-cornered stem, remarkably harsh to the touch, and no wonder, for it is full of silex, the substance that gives hardness to flint stones. This is very wonderful, but I cannot explain it. The leaves do not, like those of the grasses, form the stem itself, though they seem at first sight to do so, for they are rolled round the stem at the lower part, and sheathe it. They are generally of a pale yellowish green, suiting the autumn tints, when the wood sedges usually blossom. The flowers grow in separate spikes, the fertile ones the lowest down, and generally all green, consisting of small chaffy scales, protecting a hairy, bottle-shaped, two-divided germ, with three stigmas. The barren spikes are much prettier, for their scales are dark brown or black, and their anthers hang from them in multitudes, of yellow or sulphur colour. A spike in full flower, bowing in its graceful manner its soft yellow plume, between two darkened unopened spikes on the bending stem, presents so pretty a mixture of colour, that I wonder we do not oftener see it in river-side nosegays. In every blossom of this thick scaly head are three stamens, for the sedge is as constant to the rule-of-three as its relations the grass and the rush.

Every class has some relations among these divided

families. Among those of the fourth class, are the water-loving alder, and the evergreen box. And what do you think I am going to set you to examine now? Don't scream when I tell you it is the nettle! yes, the stinging nettle! Take hold of it boldly; squeeze it well; does it sting? No! how is that? Ha! I hear a little outcry—so you are stung after all. Yes, but not by the stem which you are grasping, but by a leaf which has lightly touched your hand. Is this because the leaves sting and not the stem? No; for the least touch of the stem will cause you a prick, and raise a little burning white head. What is the meaning of this? Perhaps a nettle is like taking trouble, or doing what we do not like—learning a hard task, or taking a dose of physic, perhaps; as long as we dally with it, and touch it, and taste it, and pity ourselves, it seems very bad; but take to it bravely, and grapple with it at once, and there is an end of the matter, and most likely there is no sting at all. Did you ever find it so?

Boys well know that this is the only way to treat nettles; and sometimes they take in other children in a way I do not approve at all, by running after them with a bunch of nettles, calling out, "This is the month that nettles don't sting;" and when the poor silly child has been persuaded to give a timid touch, the very way to get stung, they laugh, and say, "O, I told no story, I said nettles didn't sting the month, not that they would not sting you." But I call this a regular cheat, and very unkind, so I put this in as a warning.

The reason of this is, that all the little white hairs that cover the stem and leaves of the nettle are bristles, like a serpent's tooth, each with a little bag of poison at the bottom, which a slight pressure squeezes into the hand through the tiny pipe into the bristle, whereas

a good hard squeeze crushes bristle and bag together, and makes them harmless. It is only such poison as inflames the skin, but does no harm if eaten. When vegetables were more scarce, and there was famine in the land, we hear of boiled nettle-tops being used for food, and they are sometimes given now to young turkeys. The flowers grow like many four-stamened ones in flocks; they are green, and the fertile have shorter stems than the barren, which hang out rather prettily in autumn, along the serrated leaves. In Australia grows a gigantic nettle tree, which horses avoid by instinct, as well they may; for each sting is as long as a needle, and so full of venom, that it would almost be death to be stung, at least bad illness.

The amaranth, another everlasting flower, belongs to this class. It has chaffy dry scales that do not soon decay, and the flowers grow close together, some holding five stamens, others two styles. Of these are the purple globe amaranth, also the spike, covered with deep-red blossoms, that when it stands upright, we call prince's feather, when it droops, the love-lies-bleeding. Last year I saw a little girl in a railway carriage, with the finest love-lies-bleeding I ever met with; it was wound in two or three large coils, and tied into her nosegay, otherwise it would have dragged on the floor; I really think that if it had been at its full length, it must have measured more than a yard. Cockscombs are amarantths, all their red blossoms gathered into one large spreading head.

The climbers of the pentagon race have a very pretty relative here, with the same pinnate leaves, corkscrew tendrils, bright berries, green blossoms, and climbing stems—the wild vine, or white bryony, which throws itself about on all the bushes within its reach, and



adorns them with its graceful shoots. There is one which I have been watching all the summer, creeping up a tall pink thorn, and it is now nearly at the top.

The many-stamened flowers have a beautiful cousin in the person of that arrow-head, which grows in the water, its leaves just the shape of a barbed dart, and their long straight stem like its shaft. The flowers are white, three-petalled, and with a rich, deep, purple eye—the barren and fertile just alike, till examined closely.

The next plant is one that can hardly find a likeness anywhere—the arum, that is to say, better known to most of my friends as lords and ladies. Do you not like creeping along the hedge bank, poking into the clusters of heart-shaped, black-spotted, handsome, shining leaves, for the tall, green, rolled-up spike, which your busy fingers quickly undo, while tongues are busy guessing whether it will disclose a red-faced lord, with his slender neck encircled by a red and white collar of gems, or a delicate white lady. Or here and there, if late enough, you find what I used to call my lord or my lady in a coach—the sheath open, and making a beautiful green bower over its inhabitant, looking, as I now think, like the drapery we sometimes see in pictures, floating, and swelled by the wind, over a sea-nymph.

My lord or my lady, is in truth the stem, the collar of gems is the blossom; the stamens as usual, grow above, in the upper row of beads; the fertile flowers are beneath, and in time give place to scarlet berries, which look very bright in the autumn. I believe they are poisonous, but the root when dried, cleaned, and ground, becomes a soft white flour, which is known by the name of arrow-root, or, as it ought to be called, arum-root. The most esteemed arrow-root is brought

from the West Indies, but our own lords and ladies would I believe make it just as good. There is another kind sometimes grown in green-houses, where the sheath is of the purest white, and the lord, bright yellow, and in Greece, my lord goes into mourning, and appears quite black, most beautiful, but with a horrible scent.

To this class also belong all the trees which have their barren flowers in catkins, and which I pretty well explained to you in the account of the hazel. It is not treating the royal oak with due honour to pass it over so lightly, but you can find a good deal about oaks in other books, so I will not dwell on it, nor on the beech and chestnut, for if I once began, I might say so much about them that this chapter would be too long.

The fir-tree was disposed of among the needle trees, and I have only now to mention that race which is to be found in all hot countries—the cucumber, melon, and gourd. They all have soft trailing stems of marvellously quick growth, large pinnate leaves, and blossoms generally yellow of one petal divided into five; in the stamen-bearing ones, containing three filaments and anthers closely joined, like the brother-hood class; and in the pistil-bearing, perched above a great swelling germ, which in time becomes a very large fruit.

Here in England we are obliged to raise them under glasses, as the heat is not sufficient to bring them forward; and here for want of winds and bees to waft the pollen, gardeners are obliged to do it themselves, and carry the stamens to the pistil, before the fruit can be formed.

The cucumber is the most grown and most useful; next to this come the melons, handsome round fruits, full of fleshy pulp, most cool and delicious with its sharp taste. The water melon is full of juice, which is most precious to people in hot countries. In Italy, men set

up booths with shelves of water melons, slices of which they sell to the thirsty people, who enjoy them exceedingly; and in the East they are much prized; it seems a special gift of Providence that, with very little water, these immense plants should grow up bearing such a profusion of the coolest fruit.

Sometimes the gourd plants are trained over porches and trellises, so as to make a cool and beautiful bower. You remember how Jonah rejoiced in the gourd that grew over him, most likely supplying him with food and drink, as well as shelter, and how he was grieved when the worm at its root withered it at once away in a single night.

Here the first touch of frost is as effectual as the worm, and our great vegetable marrows, that the day before threatened to take the whole garden for themselves, with their noble branches, and great leaves, and mighty fruit, are on the October morning nothing but a spectacle of yellow ruin and decay, showing indeed how "the creature is subject to vanity."

Some kinds of gourds have a rind which becomes very hard, and these are very useful to the Hindoos, and many other dwellers in hot countries. They scrape out the inside, fill the rind up with sand to prevent it from contracting, and set it in the sun to dry, when it becomes a vessel capable of holding water, and often called a calabash. Another kind is called the bottle-gourd, because by tying a band round the fruit when young, it is made to grow into the shape of a bottle. For many reasons, therefore, these great fruits, though all kinds are not equally wholesome for food, are very precious, and are much grown in the East. You know the prophet Isaiah speaks of the "daughter of Zion being left like a lodge in a garden of cucumbers,"

meaning the little hut built in a field of melons, where a man might be set to watch, lest they should be stolen. As lonely stood Jerusalem when all her surrounding villages had been destroyed.

The pumpkin is a fine handsome gourd, often marbled with patterns of green. In America, it is much used for cattle, and I believe a horse, at an inn door, will eat a pumpkin when our horses would be having hay. A pumpkin pie, too, is one of the favourite dishes; it is what we should call a pudding—there is no crust over it, the pumpkin being mashed up and used with egg and milk, as we use sago or arrow-root, in making a pudding.

Pumpkins make us think of Cinderella's coach, and there is another funny story of them with which I will end my chapter. It is rather old, but perhaps you may not know it. An idle man once lay down under an oak tree, and began thinking with himself how much better he could settle the world, if he had the power. For instance, what a pity it was to see such a fine lordly tree as the oak, bearing such a wretched little fruit as the acorn; it ought to be ashamed of itself; while there was the pumpkin going crawling on the ground, with those large handsome fruits. For his part, he thought acorns were good enough for such plants, and that pumpkins ought to grow on oak trees.

Just then he felt a tap on his nose; he jumped up in a hurry, and found it was an acorn that had fallen on him. "Oh!" cried he, "how lucky this was not a pumpkin!"

You may have your laugh, and then think whether this fable does not show, that when people dare to find fault with the wisdom of God's doings, it is their own ignorance that is displayed.

## CHAPTER XXIX.

CLASSES XXII. AND XXIII.—DOUBLY-DIVIDED FAMILIES.

OUR last chapter was on plants that keep their stamens and pistils in separate flowers on the same plant, this must be on those that are still further divided, one plant bearing nothing but pistils, and another nothing but stamens. Thus some trees are entirely barren, and never bear any fruit at all, and yet if we pulled them all up, those which now bear fruit would be equally unproductive. For instance, some yew trees are in the spring covered with white floury heads of pollen, while on others we see hardly any promise, and yet as autumn comes on, those are bare which showed the fine blossom, while the others are wearing little green cups with large seeds projecting from them, much like acorns, and in time the cups become waxy red, and the seeds black.

But we do not blame the barren plant for showing us no fruit, for the truth is, that it renders the other fertile; just as there are many good quiet people who make no show in the world, and yet to whose example and advice it is owing that their friends do great deeds. What a pistil-bearing plant is, without its barren neighbour, is shown by a foreign pine in the gardens at Kew, the only one of its species in England. Every year it tries to form a fir-cone, every year the young cone withers away for want of the fertilizing pollen. The Italian pond-plant, *vallisneria*, is the oddest of the tribe—its stamen flowers unfasten themselves, and float on the water to feed the pistils with pollen.

Who does not love, in early February, to walk out by the side of the hedge, or coppice wood, while all is moist and fresh, as the sun melts the morning frost, and shines with a sweet warm brightness that makes us talk of spring coming fast, and spy about to see if the dear green world within the brown hedge is feeling it yet?

The honeysuckle is thinking about it; aye, and on certain purplish twigs there shine tufts of silver down, growing alternately on each side of the stem. "Pussy! pussy!" we scream with joy—the withy is putting on its silver buttons, and up we scramble to pull down a bough, and stroke our lips with that softest, silkiest of down, the little scales, within which the buds are safely and warmly guarded from the frosts that will nightly brace the young bough, or should the spring be rainy, this same smooth down serves, like the fur of a cat, or the feathers of a duck, to keep the wet from soaking into the little tender things so carefully protected.

Sweet spring-like silver pussies, that last all the cold ungenial time, cheerful and kindly! we are half sorry to part with you, when you shoot out into the goslings, which, however, we love quite as well. And don't the bees love them? Their first taste of fresh sweet pollen after their winter's sleep! How they buzz round, and load their legs, and what a baking of bee-bread there must be, on those March days, when brighter sunshine has unlocked the green buds, and brought out the two yellow stamens, and the delicious smell from within each of the silver scales.

The tufts certainly are much like downy yellow goslings, and are, therefore, well named from them, soft sweet things that they are; but we also call them Palms, because they are in some parts of England

carried to church on Palm Sunday, since we have no real palm trees, in remembrance of the branches that the disciples cut down from the trees. In other places the yew branch is used instead, because it is one of the few trees still green, and its dark leaves show why our Lord was come to Jerusalem on that day, but I think the Palm or withy suits best. Its fragrant soft golden blossoms dare the cold blast of early spring; and it is foremost of trees in its praise to its Maker, like the little children crying Hosanna in that time of trouble and persecution.

These yellow blossoms are the catkins, the barren flowers. The fertile ones are not so pretty, they have thick green pistils, in a spike, each with a little downy wing to fly away with when the seed is perfect. The leaf comes out much later than the "kindly flower." The withy belongs to the great genus of Willow, or Osier, called in Latin, *Salix*. There are fifty English kinds, and plenty more in other countries. Most of them have a longer and more drooping catkin than the gosling; but this, as well as the pistil, always is downy. They are a useful kind, as baskets small and great can testify, beginning from the huge bushel basket, which, when full loaded, bows down the strong man, to the exquisite little delicate white thing that balances on the tip of our finger, and just holds some bright little pin-cushion. We English have been famous for our basket-work since the days of wicker chariots, and British baskets, after which the Roman ladies eagerly sought. In Holland the bending, yielding osier, is still more valuable, for it serves to protect the great mud banks that keep the sea from overflowing the flat country below, and thus becomes a wall to preserve the whole population from ruin. Anything harder would break

under the pressure of the water, but the osier can bend and yet retain its hold.

The graceful weeping willow, with its long drooping light green boughs, looks very pretty hanging over the water, and we honour it and look at it with liking, because as its Latin name, *Salix Babylonica*, reminds us, it was the tree which grew beside the Euphrates, where the children of Judah hung their harps when they sat down and wept, and those who led them away "captive desired of them a song, and melody in their heaviness." The first weeping-willow that came to England was brought from the marshes of "proud Euphrates' stream." Perhaps you would like to read the story of some young weeping-willows that grow on the banks of the Thames, in the beautiful playing-fields at Eton. You must know that many and many years ago, some boys named Wellesley were sent to school there, and there they did, as they did through all their long lives, what they had to do, with all their might, and looked chiefly, as he who has just been taken from us once said, "to doing their duty in that state of life in which they had been placed." It is not, however, of the great Duke that I am going to tell you, but of his elder brother, who learnt at Eton to make Latin verses, which to you no doubt sounds like most difficult work, and many boys hate very much. But he did his best in work and play, and so he learnt to love them both. Well, he grew up, and became a great man, and was made governor general of India, and great conquests took place under his rule; and the two brothers were so great, that Buonaparte said the Wellesleys had done so much for England, he thought they must mean to make themselves princes of it, for he had no notion how men could love their duty better than themselves.



But after all this greatness, when Marquis Wellesley grew old, what do you think was one of his favourite amusements? It was writing Latin verses, as he had done in his school-boy days, and one of the prettiest poems he ever made was in both Latin and English, about the willows of Babylon, and the captive Jews lamenting for their sins and their exile. And when he died, at eighty-three years of age, he desired to be buried in the chapel at Eton, and that three weeping willows should be planted in the playing-fields, that other Eton boys might be put in mind that as Sion was ruined because her people fell from their God, so our only hope of safety and prosperity is in holding fast by Him, or, as he says in his verses, that "God's blessing on sound faith is Britain's force." And though you are not an Eton boy, and will never be governor of India, yet I think you can see from his example how to make your present tasks and way of life a bright remembrance to go with you through all your days to come, whether many or few.

A good many trees belong to this twenty-second class, but I have told you about most of them, and will just mention one which bears downy catkins, very beautiful, though most likely you never noticed them; and no wonder, for they are so high up, that unless there was a very high wind to shake them down, they would never come in your way—I mean the poplar. Its eight stamens are of as beautiful a crimson colour as ever you saw, hanging from a curious little fringed scale, the pistil-bearing flowers are green, also in catkins. The poplar came to us from Italy, and is the most tall and straight of all our trees. An old-fashioned cottage, with a row of poplars before it, and bee-hives under them, is one of our pleasantest sights,

but unluckily for the poor poplar, its Latin name *populus* is also the word for the people, and so the factious Roman first, and afterwards the French, chose to take it as a sort of mark of rebellion. The French, in the Revolution of 1848, went about transplanting the poplars from the gardens where they were quietly growing, and setting them up in the squares of Paris, calling them trees of liberty, shouting, and firing cannon, and hanging them over with wreaths of everlasting flowers. Of course the poor trees all died, and when the people had grown tired of all this nonsense, Louis Napoleon had them all pulled up and burnt. I hope our tall honest poplar trees will never be put to so bad a use.

The bending four-stamened birch, and the trembling aspen, are of this class too; the catkins of the aspen come tumbling down in May, and strew the paths so that I have often taken them for hairy caterpillars. Mistletoe and butcher's broom you will find among our Christmas evergreens, so we will not wait to talk about them, but go on to a relation of our old friends, the five-stamened climbers with pinnate leaves—I mean the hop. If you live in a hop district, you know the look and smell of them most intimately, as they hang in festoons on their poles, and you will not think that "hopping" means nothing but going on one leg, as some other children would say. Almost everywhere the hop grows wild, flinging its beautiful leaves about on the hedges, and curling its twisted stem round the bushes, and very nice the hop tops or young shoots are if pinched short off, boiled, and eaten on toast like asparagus. The barren blossoms have a little green calyx, containing five yellow stamens, which stand up boldly; the fertile flowers droop in a beautiful head of loose green

scales, each containing a single pistil, and these are the hops which are gathered in such quantities in Kent and Surrey, and serve to give bitterness to beer. Whole families come out to the hopping, and it is a time when the Irish pour in in numbers to earn the money that they hope will support them for the rest of the year. Other swarms come after the hops, a little aphid, an insect such as we call blight, lives on them, and would do much harm, if it was not in its turn the food of the beautiful lady-bird, who as sure as the hop-aphid arrives, spreads the gauzy wings under her scarlet shining wing-cases, and flies after it as fast as if, as the rhyme tells her, her house was on fire, and her children burning.

Though hops are so common now, there were none in England till the reign of Henry VIII., when the saying is—

“Hops and turkeys, mackerel and beer,  
Came to England all in one year.”

The hops came from Flanders, and with them, I suppose, the French name of beer, for ale had been English drink, time out of mind, and had been made with the pretty blue ground-ivy instead of hops, as the name ale-hoof still reminds us.

Next we come to the six-stamened black bryony, not the five-stamened white bryony which we had in the former class. This has heart-shaped and very glossy leaves, small green blossoms, no tendrils, and very red berries succeeding its single pistil, and looking very brilliant in the autumn when the leaves have turned bright yellow.

Of nine-stamened plants we have more than could be expected, considering that the flowering rush stands alone in the ninth class. There is an odd uncommon

water-plant with three white petals, called Frog-bit, which is a great prize to botanists; and under every hedge in early spring grows a green plant with shining leaves and long narrow loose spikes of little green flowers. This is the Dog's Mercury—why so called I cannot tell you, nor is it of much use, but everyone likes it for the sake of spring.

In the yew-tree the barren flowers have neither calyx nor corolla, but are like a cluster of little white stands—for the bunches of small stamens, covered with light buff pollen, which forms a round, floury-looking head in March or April, when shaken, will cover the tree with white dust. The fertile flowers are little scaly white cups, with a single germ, and as they are not nearly so conspicuous as the barren ones, we are apt to wonder in autumn why the trees which were so full of blossom are now without fruit.

The fruit is a very pretty berry; the seed swells and grows black, and the calyx gradually enlarges and becomes fleshy, till it grows into a beautiful waxen cup of a soft red colour, unlike anything else, containing the black, or rather deep brown, stone.

Yew berries are said to be poisonous, and though I have seen boys perched all over an old yew-tree, devouring them with all their might, yet as I believe village boys will eat anything, whether wholesome or not, and have a stronger digestion than most people, I would advise you to consider the berries as rather intended to please your eyes than your mouth.

One part of the yew-tree is certainly poisonous to cattle, the leaves and young shoots, especially when withered. They do not seem to be equally dangerous when fresh; but horses, cows, and pigs, have frequently been killed by eating the half-faded clippings of a yew-

hedge. So if ever you have to do with the sweeping up of such clippings, be careful they are thrown where animals are not likely to get at them.

In former times it used to be the fashion to ornament gardens with yew-trees clipped into all manner of wonderful shapes—peacocks, lions, faus, and pyramids—and a book was even published on the art of shaping them. Even now we sometimes see, and very snug it looks, a gateway under an arch of well-clipped yew; and sometimes an old church-yard, with a yew-tree cut into the shape of a perfect mushroom, with a bench round the trunk, completely sheltered from the rain by the matted branches and close foliage.

The yew-tree looks best of all on the borders of chalk downs, great round dark-green bushes standing up in the hedges, like over-grown shrubs, of such curious shapes that you may know your old friends for miles off, and their huge, thick, short trunks, containing such quantities of dry, crumbling, dead wood, that it is only a wonder how they can prosper as well outwardly as they seem to do.

I believe there is hardly any tree that lives so long as the yew. It is two years before the seed grows at all, and then it is very slow in getting on; and when it has reached its prime, it is so hard, and the thick ever-green leaves keep out wet so well, that it is still longer in decaying. Perhaps some of the yew-trees may still be green and fresh, which stood when they were thought so much of for the archery of England. Perhaps these old fellows gave some of their branches to furnish the tough yew bows which sent the cloth-yard shafts that won the battles of Crecy and Poitiers, and many another besides; and the English yeomen and peasants, thanks to Magna Charta, were well-

cared-for, well-protected, prosperous men, willing to use their good yew bows in their monarch's cause.

Yew branches are the Easter deckings of churches, and sometimes are carried on Palm-Sunday, as the nearest approach we have to the palm.

And they have from very old times been grown in church-yards; indeed, King Edward I. made a law that they should there be planted.

To the stamen brotherhoods belongs the juniper, which is not unlike the yew, and grows in low gloomy-looking tufts on bleak hill sides. It has dark-purple berries, and it has hardly any blossom. You remember that Elijah sat him down under a juniper-tree in the wilderness when he requested for himself that he might die, and when the angel came to him, and brought him the food that sustained him in his journey to mount Sinai.

The real palm-trees belong to the divided families. They are the last I shall have to mention of those plants that bud at once from the ground nearly at their full thickness, and grow joint by joint, or sheath by sheath, not by forming layers of wood. These tribes, remember, are the grasses, reeds, lilies, orchises, and now the palms. The growth of an asparagus is more like that of a palm-tree than anything we have here, and I have read that an infant palm, when it is in the state in which we eat asparagus shoots, is more like a wheat-sheaf than anything else. Thus the palm-tree never forms such firm solid wood as to be of much use, and the inner part is the weakest instead of the strongest. The great body of leaves all grow out together at the top, and enormous and beautiful leaves they are, all in one, spreading out so as to form a glorious crown for the tree, taller than any tree we ever see here.

These unfading palm-leaves have always been the tokens of victory. The Bible speaks of them as borne by the martyr-host in heaven, and they are believed to have been the branches strewn by the disciples on the entrance into Jerusalem. On Palm-Sunday, through all the south of Europe, they are carried in procession, solemnly blessed, and laid up with high honour to be kept for the rest of the year.

The palm of Palestine is, I believe, the date palm, which has feathery leaves, and bears the sweet fruit that is so precious to the Arabs in the desert, forming almost their whole subsistence on long journeys.

It is one of those that can live furthest from the equator; these trees in general can only bear a very hot climate. The only one I ever saw was in a hot-house, a fan-palm, it grew much like a grass, but at the joint, instead of hanging down a streamer, it put out a circular fan with a jagged edge. Some palms have a very few leaves, spreading out like umbrellas, but immense feathers and plumes are the most usual shape. Some are deep green, some silver-white on the under side, some fringed with yellow and blue. I cannot tell you half what I have read of their beauty. You must look for it in foreign books, especially those about South America, and the South-Sea Islands, in which places they grow to the grandest size. That which is best known to us is the cocoa-nut palm, at least its hard round fruits are. Fine fellows, as large as a baby's head, covered with brown fibre, and their shell so hard, that it will serve to break a man's head, as the ill-treated elephant showed. At the bottom of the nut are the three spots, called the monkey's face, two hard, the third soft, as the young plant might have

sprouted through it. Piercing this, out flows the delicious cocoa-nut milk, with its nutty flavour, nearly a wine-glass full, even when we have them here, after a long voyage. Then, when the nut is sawn in two, we find each half lined with a white substance as pleasant to the taste as the milk; and when this is eaten, the shells make nice strong bowls, and may be prettily carved by those who are clever enough. As walnuts have a green case outside their shell, so cocoanuts are packed in immense triangular coverings, consisting of brown fibre. Perhaps the use of them to the nut is, that it may not be broken by falling from such a height as the top of the tree. To the natives of the Asiatic Islands they are useful for cordage, and to us for matting and many other purposes.

The Pirijao of South America has the handsomest fruit in the world, egg-shaped, as large as a peach, of a golden colour, shaded with crimson on one side. It grows in clusters of seventy or eighty, like giants' painted grapes, each tree bearing three of these mighty bunches, hanging down under delicate flag-like leaves, curled at the edges, all at the summit of one straight trunk sixty or seventy feet in height. There are seldom seeds in these lovely fruits, which are used by the Indians like potatoes. In fact, I believe there is no palm that is not in some way useful, and of which the fruit is not wholesome. The stamen-bearing flowers are, in some kinds, very handsome, generally growing like those of their lesser lily-like cousins, in a spathe. They are generally yellowish and crowded closely together, but now and then they are large and of a dazzling white, hanging down in resplendent garlands. But there are multitudes of palms besides those that have been correctly described, and I must men-



tion no more, except one word of the plantain, the king of leaves, one leaf large enough to roof a small house!

There is another class, the twenty-third, where the flowers are very irregular, some are perfect, with both stamens and pistils, others have only stamens, and others only pistils. The only wild flowers of this class are the pellitory-of-the-wall, which has small purple flowers in tufts, and the orache, almost a goose-foot.

The mimosa is of this race; it has very pretty balls of blossom, and one sort is called the sensitive plant, because, if a finger is held near it, the leaves shrink and fold back in dread before it can even touch them.

Were you ever puzzled to find the blossom of the fig? Strange to say, the fig's flower is inside its fruit. You know the little green figs in the spring. They hold the flowers. If you cut them open, you would find them full of the little things, some perfect, others imperfect. Their perfection consists in having three stamens and a pistil with one seed. If they have only stamens, the calyx is three-cleft; if only pistils, it is five-parted. The great Banyan of India, the tree which sends down branches, and roots them again, so as to be a whole grove in itself, has a scarlet fig, and there are many other sorts. That with the palmate leaves, and green figs, which grows in our gardens, is, as you will be pleased to hear, the fig-tree of Palestine, the same sort that shaded Nathanael, and that, growing with the vine, gave to the Israelites the idea of plenty and of peace. The oldest fig-tree in England is at Oxford, whither it was brought from Aleppo in the reign of King Charles I., and it is so strong and healthy, that in 1833 its figs gained a prize.

Here ends my list of the plants with stamens and

pistils—one more chapter upon the unseen blossoms that we have missed before, and I shall have told you all I know, or think you would understand, about the vegetable world.

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## CHAPTER XXX.

### CLASS XXIV.—FUNGUSES.

OUR chapters have brought us back to the unseen blossoms again; for the twenty-fourth, the last class, consists entirely of these, and includes those of which I spoke to you in the autumn months—namely, the ferns, mosses, and lichens, with three other races, which I did not then mention—the horse-tails, mushrooms, and sea-weeds.

The horse-tails, or Dutch rushes, are spoken of by some books as a sort of fern, and in some respects they do resemble them. I think you can hardly fail to know them by sight, for in poor ground they are a very troublesome weed. They have one hollow light-green stem, in sheaths one within the other, each joint marked by a black band, and bearing no leaves, but whorls of straight branches, spreading out round it like the spokes of a wheel, and often branched again. The edges of the sheaths are deeply cut, and bordered very prettily with black. The stem is excessively harsh, like that of the sedges, and for the same reason; it is full of silex or flint, which, with a powerful magnifier, may actually be seen in fine grains, and it is so rough as to be sometimes used as a delicate file. The plant looks a little like a child's first attempt at drawing a

fir-tree ; indeed, I have known a person who had never seen the horse-tail, coming on a quantity of it suddenly, and at first taking it for a plantation of young larches.

This is when it is in its wintry state, and the tree-like stem answers to the frond of the fern. The part which answers to blossom appears early in the year. It is a curious-looking thing, growing about two inches above ground, and perhaps it may have puzzled you : it is more the shape of a nine-pin than of anything else that I know—a nine-pin with a head I mean, an oblong egg-shaped head, growing on a straight stalk, and of a very pale buff colour, almost white. On this head spring up dark-brown shields, or scales, something like those of the shield-fern, standing up like very small umbrellas, and containing beneath them an immense quantity of fine light-coloured dust. Botanists puzzled themselves for a long time about this dust, whether it was seed or pollen ; but at last, when looking at it with a very strong glass, as it lay on a sheet of white paper, it was found that some of the particles had minute threads proceeding from them, and that with these they had a sort of motion, like that of a spider on its eight legs. This was thought to be like those movements by which some seeds are known to impel themselves towards places fit for their growth, so it was supposed that these were the seed-grains, and the rest of the dust was instead of pollen.

As to the fungus race, they are more mysterious still, and more unlike other plants. They seem to begin from almost nothing ; even the larger sorts are at first only visible in a thin layer of something like a cobweb, which, when something happens to favour its growth, throws up little humps, which gradually grow

larger and longer, and gain a sort of stalk ; then, if cut in two lengthways, there appears a hollow place, and within this a cap is formed, supported on a stem ; the cap and stem grow on, and become more solid and fleshy, while the outer case grows thinner and weaker, till at last they break through it, and show themselves to the world, a sort of round fleshy table with one leg, and the under-side consisting of a great number of rays or ribs, which botanists call gills, and believe to contain purses of seeds, though these have never been seen, and some doubt whether there are any.

The morel and truffle are the only English plants of this tribe that it is here thought safe to use for food, besides the mushroom, an excellent example of the mode of growth. You all know the pretty white head, and the bright pink gills underneath, that one looks for so anxiously, to see whether it is a real mushroom or not ; and when it is in its prime you may see the remains of its old case, hanging down like a fringe round the edge of a parasol, and making a sort of ornamental band round the stem ; or when it has not yet broken through the case, do we not know it well as a button ?

Who can live near upland meadows and not like mushrooming ? The baskets we prepare, full of hope and glee, and then the walk on the fresh autumn day, the green short grass, and then the merry onteries, " Oh ! there's one ; I see such a beauty ! " and the race to get to it ending often in " Oh dear ! it is nothing but a bit of chalk ! " " Well, I am sure I see a whole lot there ; I am sure they are mushrooms this time, for they are in a ring ! " Another race, and such an outcry from the first to come up, " Puffs, puffs ! only puffs after all ! " But at last the real ring is spied out, and mushrooms free from doubt or blame are found, white above,

pink below, delicious in scent—some old and brown, some little buttons, but all worth gathering and carrying home, perhaps to be sorted and sold, perhaps to be offered as a great present to the elder people's dinner. Under a hedge an enormous mushroom may now and then be found, which, though pink, white, and fragrant, some people call a horse-mushroom, and reject, but I don't believe there is any poison in it, and if it is not as delicate as the smaller kinds, it is quite fit to be used for catsup. Mushrooms grow, as we have said, in dark-green rings on the grass; I believe this is because they render the soil richer, and therefore the grass grows greener among their roots, if roots they may be called; but it was a pretty old notion that these rings were made by fairies dancing in circles, and that he who went to sleep within one would see the wonders of Fairyland.

It is not only the true mushroom that forms fairy rings, so do also several kinds of fungus, or, according to their English name, toadstools. I must say toads seem to be better accommodated with furniture than any other animal, to judge by the beautiful cushions their stools sometimes wear. Here is one covered with rich shining crimson satin—another with crimson velvet, with embossed white spots—another of the most brilliant orange—another with deep purple—another a beautiful lilac, with white lace-work over it, like a lady's ball-dress. And yet you would most likely call them nasty poison toadstools, and kick them over!

That many kinds are poisonous to man is quite true, and therefore people should be warned against them; but it is not necessary that everything should be of positive use to us to be admired, and I do not think we have a right to call any of the works of the Creator,

nasty. I am sure we should not, if we once looked well into them.

I believe the wholesomeness of many kinds of fungus depends on the soil in which they grow, and the climate of their country, so that many sorts which we avoid are eaten in Italy, Germany, and Russia, not that I would by any means advise you to try any experiments upon them.

The little yellowish toadstool that grows in fairy rings, in such numbers that it looks as if it might be a crowd of fairies, has a French name, Chanterelle, which we may call it by if we wish to distinguish it. The ovate toadstool is often to be seen, in shape much like an umbrella, pale-brown above, and darker below, verging on purple, and the great oyster-toadstool is to be found in damp woods, growing on stumps of old trees, quite white, without a stem, and unlike others of its tribe, formed like a cup or vase, the gills outside, and what is usually the cap, concave (or hollow) instead of convex, often in most graceful forms. There is the velvet-stalked toadstool also, red above, and brown below, also a parasite on trees. The verdigris, and the orange-toadstool you may likewise find. All these with gills on the under side belong to the genus called in Latin, *Agaricus*, in English, mushroom, or toadstool. They all flourish chiefly in autumn, and delight in damp, and what we should call unwholesomeness.

Another genus has no English name, though one species at least is common in England, the *Boletus*, I mean, a red shining fungus, growing on old trees in autumn, very glossy and polished above, and beneath, of a spongy consistence, and dull greenish-yellow colour, full of little pores or holes, which are supposed to answer the same purpose as the gills.

The morel reverses the mushroom; it has a stem and round cap, but the under side is the smooth part, the upper is covered with net-work. One sort of the morel is good to eat.

The puff-ball shows nothing outside but a hard white case, gathered together at the bottom. In its younger state the inside is mealy, not unlike, in substance and colour, mustard as spread on a poultice, but when ripe, the white skin splits, and lets loose an immense quantity of the finest brown dust, supposed to be seed, though how formed no one knows. Puff-balls are of every size, from a marble upwards; I have seen them larger than a cricket-ball, and it is said that they grow as big as a man's head. Everyone knows the funny things, and how many have been angry with them for pretending to look like mushrooms; and yet they are a very good sign, for wherever they grow, mushrooms are almost certain likewise to be found. Many boys have fired off their dust at each other, and they are sometimes dried and burnt before a bee-hive, as their smoke will put the bees to sleep without killing them. There is one eatable sort of puff, the truffle, which grows under ground, and is a brown unsightly thing, not by any means like the white ball on our downs. It is found and gathered in a curious way, by training dogs, and sometimes pigs, to smell it out, and then digging for it. It is very rare, and is generally sent to London to fetch a high price for great people's grand dinners. The only truffles I ever saw were brought to the door many years ago, by a man who had his little clever truffle-hunting dog with him, quite as much of a sight as the strange delicacies he found.

In the dry ditches and hedge-sides you may find, in

autumn and winter, a jewel of the way-side, perched upon some dry, withered old stick. It is an exquisite scarlet cup, of such a colour as no paint can ever equal, soft, bright, glowing, well suiting its name of fairy bath. Where could Queen Mab find a more beautiful cup to hold her dew-drop bath? They grow on little bits of broken stick, and serve our village children instead of nosegays in the winter. It is a great prize to get a large one. Their Latin name is *Peziza*.

Other kinds of fungus are like jelly; there is a yellow kind especially growing on old railings, and named St. Gundula's Lamp, after a German lady who used to visit the poor and sick in the early dawn, with a servant carrying a lamp to light her on her way. The multitudes of fungus are indeed beyond reckoning, they meet us everywhere, wherever there is decay or injury they grow up; dry rot which destroys timber is believed to be a fungus; so is smut in wheat; and some people think the same of the potato blight. Funguses grow in every unexpected place; white furry forests of them, by name mildew, start up on preserves, and dismay the housekeeper. Blue mould makes woods for the mites to range in on an old cheese, and grows up feeding on the blacking of old shoes. Anything will make a soil for these smallest of vegetables—ink, jam, leather, paper, wood, they want nothing but damp to set them growing, and where or what they spring from is beyond the guess of any wise man who ever yet lived, unless he has the true wisdom to turn all his knowledge into what each little child starts from, the beginning and the end of all learning, that God made them all, and His ways are past finding out.



## CHAPTER XXXI.

## CLASS XXIV.—SEA-WEEDS.

ONE tribe more remains, the sea-weeds, as strange and untraceable as the other unseen blossoms. Some seem to have stems and leaves—fronds, as they are called—and seed-producing organs, with shields or purses, but these are only the more perfect kinds: others are all jelly or moist leafiness and fibre, and produce other plants from any part. Of those that do produce seed, the greater number have two different kinds of parts for the purpose; but both these form seed, so that they cannot answer to the stamens and pistils of other plants.

Their colours are either green, olive, or red, in every kind of shade. The green kinds generally grow in shallow water, the olive in somewhat deeper, the red in the deepest of all; but this is only a general rule, and there are many exceptions.

Some grow rooted at the bottom of the sea, or on stones, rocks, or even shells; others float about on the water. I have been so little by the sea-side that I have very little acquaintance with these wonders, and of those that I remember by sight, I did not know the proper names, for it was before I learnt any botany. There was what we used to call the lion's-tail, but which is rightly the sea-tangle, or wand, a hard stem as large round as a walking-stick, ending in a bunch of long broad streamers or ribbons, all dark brown, and somewhat slimy to the touch, and very salt in smell, aye, and making our fingers so; but little we recked of that,

when we danced about, dragging them behind us, on the shingly beach. Those are certainly rooted, and now and then, when brought ashore by the tide, bring a stone with them, as well as a number of little limpet-shells, whose inhabitants live on them. The fructification is hard to find; it is in little clouds of purses in the body of the streamers. In Scotland these used to be eaten, and where wood was scarce, knife handles, and other small matters, have been made of the stem. Some people hang up a lion's-tail in their houses, because damp in the air makes it stretch, so that it serves to show them what the weather is likely to be.

Thinking about the lion's-tails I played with before I was seven years old, has brought back the recollection of another branched pretty sort, which we used to find bordering high-water mark, generally rather dry and old. This had swellings along it, from which it is called knotted fucus. They were, in fact, hollow places filled with air, the use of them being to make it float on the water; and it is the same again with another sort, looking like a string of brown gooseberries. These the little boy who was my sea-side playfellow, used to crack, as inland children do poppies, and you may hear them snap under the foot as you tread on them. If you want a name for it, you may call it swine-tangle; the people of Gothland call it so, because they give it to their pigs, when boiled and mixed with flour. The blossom is at the end of the fronds.

These, and many more which I do not remember, used to be our delight in a little rocky hollow of the beach, covered with grey and red shingly stones, famous for ducks and drakes. It was no place for shells, except limpets, and the solid part of the cuttle-fish; but there were the fresh curling breaking waves,

and such a distance of the blue bright sea. We were very happy there.

Some years after this, I had a little more friendship with sea-weeds, in certain boating days, when we, merry children, used to stretch out our hands to catch them as they floated by, and call them by droll names of our own. Our favourite was what we called the Mermaid's staylace, a long round string like whip-cord, some straight, some spirally twisted, or as we used to say, these latter were the old laces that the mermaid had used and thrown away.

Once I remember our trying to dress an old stump of a wooden doll in sea-weeds, and calling her a mermaid, but it was a slippery unsuccessful business, and I don't think the ancient blue-eyed lady could have been too comfortable. They are nothing but a hollow stem, jointed within, and filled with air—nothing more is visible. They grow to be thirty or forty feet long, and sometimes in shallow places are a hindrance to boats. We used to gaze down when the sun shone into the clear water of the little bays, and look at the crabs crawling sideways about among these strange weeds and the stones. I have since learnt that sea-laces is their real name, and that in Shetland they are called Luckie Minnie's lines. They may well be called so, for when dried and twisted they are tough enough to serve for fishing-lines. Learned books say they are formed by one long thread twisted in a spiral, so as to make a tube of this immense length. It is covered with hairy fibres, the seeds in cases growing among them over the whole surface of the frond.

Sea-thongs, like the laces, only flat, and not round, float about with them. The thongs, however, grow out of little green round saucers, which in some places

may be seen, covering the rocks, like green buttons. The saucers live two years, the thongs only one. The thongs are in fact the blossoms, and bear the seed within them, the round spots with which they are covered being the pores through which the seeds come out.

Do you recollect how Columbus was hindered by the multitudes that were matted together in the Atlantic? and how the sailors were frightened, and fancied they had come to the edge of the world, which they thought like a great plate, and that they should stick fast, and never come home again? It is the same still, at certain seasons, in that part of the Atlantic; such quantities of sea-weed floats about, that vessels are in danger of getting entangled, and the surface of the ocean looks like a great marshy meadow, as far as the eye can reach. It is a kind often cast on our coasts, with leaf-like fronds, and its seeds in round berries, from which it is sometimes called sea-grapes, but it is better known as gulf-weed. It is one of the green kinds.

Sea-weeds are eaten by the cattle of the Hebrides, which have little grass to eat, and go down to look for them at low-water, keeping the time of the tide as sensibly as their masters could.

Sea-weed is burnt in great quantities in Scotland; its ashes, called Kelp, are useful for making both soap and glass, on account of the quantity of the substance called alkali, or potash, that they contain.

Laver, a black shiny weed, found on rocks in Cornwall and Devonshire, is stewed with water and vinegar, and makes a very good relish to meat, when eaten very hot. Some kinds are full of gluey matter; one growing in Ireland is called Carigeen moss, and is some-

times boiled down into jelly; and that which is found on the coast of Java, is the substance of which the swallows build the nests that the Chinese make into soup.

There is a Turkey-feather sea-weed, which anyone near the shore should look for, and may perchance find, as it grows in shallow pools left by the tide, in the hollows of rocks. I have never seen it, but my books say no one can mistake it; it is shaped like a fan, or like the short broad feathers of a turkey, and is covered with minute hair-like fibres, which catch the light, so that the frond shines with rainbow colours, and deserves its Latin name of the peacock. It grows in plenty in the Mediterranean, and is also found on our southern English coasts. Pray search for it.

The oyster-green is a large pale-green frond, not unlike a bit of some torn leaf. It is often used to cover oysters, which is the reason it is so called.

We now come to the red kinds, those beautifully delicate things that we see polished through the shallow water, and that look very well, even when spread out on paper. They have no English names, unfortunately, for people have been very apt to overlook them, like the fisherman who, when a botanist spread out a little branched specimen of clear rosy-red, which he had just found, said, "he did not think there could be anything so bonnie to be got in the bay."

How bonnie they are you must learn by your own eyes, and perhaps you may some day go further into their history; I can tell you very little about them. But I must not pass over the corallines, which stand on the borders of vegetable and mineral, something between the two.

You have heard of the coral worm, or zoophyte, that

extracts from the sea-water the lime of which they build those wondrous stony dwellings, which may in time become rocks and islands. For a long time it was a doubt whether these red, hard, branching sea-weeds, the corallines, were vegetables, or the houses of animals; but at last they were clearly proved to have no animal life in them, and to be, in fact, stony vegetables. They are full of lime, quite stiff and hard, and if held to a candle, will give a beautiful white light. One white coralline, which is extremely hard, is used as part of the mortar of the Cathedral of Iona, which is so hard that it is easier to break the stones than to displace them. Another builder uses it—a tiny shell-fish, whose own house is too small for him, as he has a beautiful orange fringework projecting beyond his shell. To guard this soft unprotected part, the little creature builds himself a grotto, of bits of stone, and of almost equally hard coralline, all bound together with silk of his own spinning, and softly lined with the same. There's a wonder of the deep for you!

*Conferva* is the name of the slimy green hairy weed found on stones and rocks within high-water mark, spreading out when the water comes to it, and drying up and becoming like a green crust when left to itself.

Powerful microscopes discover in it, what opens to us another field of our own ignorance. They find that inside the thin skin that covers it, there are an untold host of little grains, or atoms, each with a tiny beak, and that these are like live things dancing, whirling round each other, reeling, twirling backwards and forwards, and round and round, not regularly, but as if each had a movement at its own will.

Sometimes they multiply, come thicker together, divide into little parties, and form a new membrane,

or outside case; and this motion only takes place at sun-rise. At other times of the day they are still. What are they? Are they analogous to seed?

These strange things are not found only in the sea; there are many sorts named *confervæ* to be found in fresh water, especially stagnant pools, which they line with green. You have seen some of them hundreds of times, and know their disagreeable green shiny look, but those who have examined them tell us of their beauty. One sort grows on stones, and is very like toad's-spawn. Another kind is the *oscillatoria*, long green hairy stuff, that oscillates with the movement of the stream, and is thought really to have a motion of its own.

And here again we stop short; for this is the end of the Chapters on Flowers, and I am sorry for it, my little readers, for they have been a great pleasure to me. They have taught me much that was new, and made me look deeper into books to clear my notions, and certify what I knew before; they have set me watching, more than I did before, the lovely things in nature; they have turned my mind back to many precious recollections of happy hours and friends of old days; and I hope that thinking about all these has helped me, as I trust it may help some of you, to think more about the Power and Goodness that made the "field joyful, and all that is in it; planted trees for a dwelling for the birds of the air, and prepared grass for the cattle, green herb for the service of man, wine that maketh glad the heart of man, and bread to strengthen man's heart."

All study of nature must turn to His honour and glory, if only used right. Perhaps some day you will learn far more than I can teach you, some, it may be

from books, but all can and may, from a humble, obedient, adoring heart and eye, that turns from God's works to God Himself. That love is true wisdom, and the flowers of the field are precious to us, as helping us to reach up to it.

“ What, though I trace each herb and flower  
That drinks the morning's dew,  
Did I not own JEHOVAH'S Power,  
How vain were all I knew !”



## COMMON ENGLISH PLANTS,

ARRANGED BY THEIR CLASSES.

CLASS I.—1 STAMEN.—*Monandria*.

Glass-wort, Chap. XIII. 95.

Mare's-tail, Chap. XIII. 95.

CLASS II.—2 STAMENS.—*Diandria*.Order 1.—1 pistil.—*Monogynia*.

Privet, Chap. XIII. 100.

Ash, Chap. XIII. 101.

Enchanters' Nightshade, Chap. XIII. 101.

Speedwell, or Veronica, Chap. XIII. 101.

Butter-wort, Chap. XIII. 101.

Bladder-wort—a yellow flower, with a long spur, its leaves have small vessels, which fill with air like bladders, and float the blossom to the surface of the water, till the seed is ready to be ripened under water.

Gipsy-wort, Chap. XIII. 101.

Sage, Chap. XIII. 101.

Duckweed, Chap. XIII. 102.

Vervain, or Verbena, Chap. XIII. 100.

CLASS III.—3 STAMENS.—*Triandria*.*Order 1.—1 pistil.—Monogynia.*

Valerian—corolla, of one petal, divided into five; a spur at the bottom, long filaments growing on it.

Three kinds are common, all have many blossoms in one head.

Red valerian is a handsome bright red flower, often found on old walls and rocks.

Great wild valerian is of a pale flesh-colour, and grows near rivers; it has a woody stem, three or four feet high, and deeply serrated leaves. Cats are very fond of its smell, and will roll upon it in delight.

Small valerian—a little plant, its stem unbranched, and its blossoms a pale blush colour, growing in wet meadows. All three kinds flower rather late in summer.

Corn Salad, or Lamb's lettuce—a very small plant, growing close to the ground in stubble, under corn, or in fallow-land. The stem is very much forked, the leaves without footstalks, the root fibrous, the blossoms of one petal, in five divisions, and of a pale grey or blue colour, about the size of those of shepherd's purse.

Crocus, Chap. I. 4.

Iris, or Flag, Chap. XIV. 104.

Cotton-grass, Chap. XIV. 111.

*Order 2.—2 pistils.—Digynia.*

Grass, Chap. XIV. 107.

*Order 3.—3 pistils.—Trigynia.*

Water-chickweed—a little white flower, growing near pools and streams, in thick tufts.

All-seed—a little creeper on neglected ground, the

stems much branched, lying flat on the ground, the leaves in stars of four together, the blossoms greenish white.

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CLASS IV.—4 STAMENS.—*Tetrandria*.

Order 1.—1 pistil.—*Monogynia*.

Teazel, Chap. XV. 115.

Scabious, Chap. XV. 113.

Field madder—small and grey, much like lamb's-lettuce, but it may be known from it by having four stamens, four divisions of the corolla, its leaves in whorls of six.

Wood-ruff,

Cross-wort,

Ladies'-bed-straw,

Cliders, or goose-grass,

Plantain, Chap. XV. 117.

Burnet, Chap. XV. 118.

Cornel or dogwood, a bush often seen by road-sides, with white flowers in cymes, like small heads of elder, the fruit a purple berry, the branches red.

Ladies'-mantle, Chap. XV. 121.

Order 4.—4 pistils.—*Tetragynia*.

Holly, Chap. XI. 80.

Pond-weed—green leaves, floating on the water, and spikes rather like plantain, only greener, found in ponds and rivers.

Radiola—a tiny plant growing on gravelly heathy soil, its blossoms white.

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CLASS V.—5 STAMENS.—*Pentandria*.

Order 1.—1 pistil.—*Monogynia*.

Forget-me-not,

Mouse-ear, Scorpion-grass,

} Chap. IV. 24.

Gromwell—a pentagon flower, the seeds four, and particularly hard and polished, the blossoms small, growing on a branched stem, the leaves sharpened, and with short foot-stalks. There are four English kinds : the common gromwell, a pale buff colour ; the corn gromwell, quite white ; the purple, a deep blue, but not common ; the sea gromwell, beautiful blue, and a large handsome flower, growing on the sea shore.

Anchusa, Chap. XVI. 123.

Houndstongue, Chap. XVI. 123.

Lung-wort, Chap. XVI. 123.

Comfrey, Chap. XVI. 123.

Borage, Chap. XVI. 123.

Catch-weed—a very well-named plant, it is all over little white hooks that give it a hoary appearance, and cling to whatever touches it. It grows in waste ground, and has a pale little insignificant blue pentagon flower.

Bugloss—a rough bristly plant, with a blue flower, growing in sandy places.

Viper's-bugloss, Chap. XVI. 121.

Primrose, }  
 Cowslip, } Chap. IV. 19.  
 Oxlip, }

Bogbean, Chap. IV. 24.

Featherfoil, or water-violet. You will be lucky if you find it. It has a tall spike of primrose-shaped lilac flowers, and feathery leaves, growing in the water.

Yellow Loose-strife, }  
 Money-wort, } Chap. XVI. 129.  
 Yellow Pimpernel, }

Pimpernel, Chap. XVI. 129.

Bindweed, Chap. XVI. 132.

- Canterbury-bells, }  
 Bell-flowers, }  
 Venus's looking-glass, } Chap. VII. 45.  
 Harebell, }  
 Campanula, }  
 Sheep's-bit—a blue flower, rather like a scabious in  
 general appearance, growing on heaths.  
 Touch-me-not, Chap. XVII. 136.  
 Violet, }  
 Dog-violet, } Chap. IV. 25.  
 Heart's-ease, }  
 Mullein, Chap. XVI. 130.  
 Henbane, Chap. XVI. 123.  
 Nightshade, Chap. XVI. 125.  
 Deadly Nightshade, Chap. XVI. 124.  
 Centaury, Chap. XVII. 134.  
 Honeysuckle, Chap. XVI. 134.  
 Spindle tree, Chap. XI. 84.  
 Currant, }  
 Gooseberry, } Chap. XVII. 137.  
 Ivy, Chap. XI. 84, 136.  
 Periwinkle, Chap. IV. 22.

*Order 2.—2 pistils.—Digynia.*

- Goosefoot, }  
 Good King Henry, } Chap. XIX. 156.  
 Elm, Chap. XVIII. 144.  
 Dodder, Chap. XVII. 133.  
 Gentian, Chap. XVII. 134.  
 Sanicle, Chap. XIX. 154.  
 Carrot, Chap. XIX. 152.  
 Earth-nut, Chap. XIX. 152.  
 Hog-weed, Chap. XIX. 153.  
 Cow parsley, Chap. XIX. 153.

Sea Holly—a curious pale sea-green plant, covered with a white bloom, the leaves opposite, with a prickly stiff border, much like holly leaves, and a blue blossom, in heads like small teazels.

Hemlock, Chap. XIX. 153.

Gout-weed, Chap. XIX. 153.

Angelica, Chap. XIX. 152.

Samphire, an umbelliferous plant, growing by the sea-side, often made into a pickle.

*Order 3.—3 pistils.—Trigynia.*

Guelder rose, Chap. XIX. 155.

Elder, Chap. XIX. 154.

*Order 4.—4 pistils.—Tetragynia.*

Grass of Parnassus—a handsome white flower, growing in boggy places on mountains.

Thrift, Chap. XIX. 157.

Flax, Chap. XIX. 157.

*Order 5.—5 pistils.—Pentagynia.*

Sundew, Chap. XIX. 157.

CLASS VI.—6 STAMENS.—*Hexandria.*

*Order 1.—1 pistil.—Monogynia.*

Snow-drop, Chap. I. 2.

Daffodil, Chap. II. 6.—a white flower in a sheath.

Garlick, Chap. XX. 164.

Wild Onion—a curious plant, like a little onion, heads growing at the top of a stalk, at first enclosed in a sheath, and when this bursts, coming out in flowers and little bulbs, which plant themselves.

Fritillary, Chap. XX. 160.

Star of Bethlehem, Chap. XX. 162.

Blue-bell, }  
Hyacinth, } Chap. XX. 162.

- Asphodel, Chap. XX. 166.  
 Asparagus, Chap. XX. 165.  
 Lily of the valley, Chap. XX. 165.  
 Solomon's seal, Chap. XX. 164.  
 Rush, Chap. XX. 166.  
 Wood-rush, Chap. XX. 167.  
 Barberry, Chap. XX. 165.

*Order 3.—3 pistils.—Trigynia.*

- Dock, Chap. XX. 168.

*Order 5.—Many pistils.—Polygynia.*

- Water-plantain, Chap. XX. 166.

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CLASS VII.—7 STAMENS.

- Chickweed winter green, Chap. XXI. 169.

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CLASS VIII.—8 STAMENS.—*Octandria.*

*Order 1.—1 pistil.—Monogynia.*

- Willow-herb,  
 Codlings and Cream, } Chap. XII. 47.  
 Wortleberry, Chap. XXI. 172.  
 Ling, Chap. XII. 46.  
 Heath, Chap. XII. 46.  
 Maple, Chap. XXI. 175.

*Order 3.—3 pistils.—Trigynia.*

- Buck-wheat,  
 Persicaria, } Chap. XXI. 175.

*Order 4.—4 pistils.—Tetragynia.*

- Herb Paris, Chap. XXI. 175.  
 Adoxa, Chap. XXI. 175.

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CLASS IX.—9 STAMENS.—*Enneandria.*

- Flowering rush, Chap. XXI. 175.

CLASS X.—10 STAMENS.—*Decandria*.*Order 1.—1 pistil.—Monogynia.*

Yellow bird's-nest—a yellow, scaly, leafless plant, growing on stumps of trees, a great curiosity.

Arbutus, Chap. XXI. 176.

*Order 2.—2 pistils.—Digynia.*

Saxifrage, Chap. XXI. 176.

Soap-wort, Chap. XXI. 176.

Pink, Chap. XXI. 177.

*Order 3.—3 pistils.—Trigynia.*

Catch-fly,  
White campion, } Chap. XXI. 177.

Stitch-wort,  
Chick-weed, } Chap. XXI. 177.

Sand-wort, Chap. XXI. 177.

*Order 5.—5 pistils.—Pentagynia.*

Penny-wort, Chap. XXI. 178.

Stone-crop, Chap. XXI. 178.

Wood-sorrel, Chap. XXI. 178.

Corn-cockle, Chap. XXI. 178.

Lychnis,  
Rose-campion, } Chap. XXI. 177.  
Ragged-robin, }

CLASS XI.—4 STAMENS TO 20.—*Dodecandria*.*Order 1.—1 pistil.—Monogynia.*

Purple Loose-strife, Chap. XXI. 178.

*Order 2.—2 pistils.—Digynia.*

Agrimony, Chap. XXI. 178.

*Order 3.—3 pistils.—Trigynia.*

Wild Mignonette, }  
Woad, } Chap. XXI. 179.



*Order 4.—4 pistils.—Tetragynia.*

House-leek, Chap. XXI. 179.

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CLASS XII.—MANY STAMENS GROWING ON THE  
CALYX.—*Icosandria.*

*Order 1.—1 pistil.—Monogynia.*

Cherry, }  
Black-thorn, } Chap. V. 28—all these have one pistil,  
Plum, } as their single stone proves.

*Order 5.—5 pistils.—Pentagynia.*

Medlar, }  
Hawthorn, } Chap. V. 27.

Apple, }  
Pear, } Chap. V. 28.

Mountain Ash, Chap. XXII. 184.

Meadow-sweet, Chap. XXII. 184.

*Order 6.—Many pistils.—Hexagynia.*

Rose, }  
Sweet-briar, } Chap. V. 31.  
Dog-rose, }

Strawberry, Chap. V. 35.

Raspberry, }  
Bramble, } Chap. V. 35.

Cinquefoil—pretty strawberry-shaped yellow flowers, of which there are many kinds. The commonest is the silver-weed, or goose-grass, which grows in dry places, by dusty way-sides. Its leaves are feather-shaped, and white outside, which gives the plant a silvery look.

Tormentil—also yellow, but with four petals. It is a pretty little smiling plant, the last of the little yellow hedge-creepers to hide its cheerful face. I have often seen it blowing in the winter.

Geum—an odd reddish bell, found near the water side, the pale red petals holding a perfect bush of greenish styles.

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CLASS XIII.—MANY STAMENS GROWING ON THE  
RECEPTACLE.—*Polyandria*.

Order 1.—1 pistil.—*Monogynia*.

Celandine—a yellow flower, the petals adhering so loosely it is hardly possible to gather it without their flying away; the germ long, growing into a pod; the leaves grey and pinnate. It blossoms all the summer, and looks like a hedge butter-cup, without its polish.

Horn-poppies, Chap. XXII. 186.

Poppy, Chap. XXII. 185.

Water Lily, Chap. XXII. 186.

Lime, Chap. XXII. 187.

Order 5.—5 pistils.—*Digynia*.

Peony, Chap. XXII. 187.

Larkspur, Chap. XXII. 187.

Monk's-hood, Chap. XXII. 187.

Columbine, Chap. XXII. 188.

Order 6.—Many pistils.—*Polygynia*.

Anemone, Chap. III. 13.

Clematis, Chap. XXII. 189.

Meadow-rue, Chap. XXII. 188.

Pheasant's-eye, Chap. XXII. 186.

Pile-wort, Chap. III. 16.

Crow-foot,        }  
Butter-cup,        } Chap. III. 15.

Marsh Marigold, Chap. III. 17.

CLASS XIV.—TWO LONG AND TWO SHORT  
STAMENS.—*Didynamia*.

LABIATE FLOWERS.

*Order 1.—4 naked seeds.—Gymnospermia.*

Bugle—a dingy blue flower, growing in whorls on a short simple stem, which, as well as the leaves, is tinged with red. It grows in quantities in dry woods in July.

Germander—also called wood-sage, its leaf is very like sage, and grows in pairs on each side of a square stem, ending in a spike of pale greenish yellow flowers. It is to be found in woods and hedgerows late in the year.

Cat-mint—a soft downy plant, the blossoms white, except the lower lip, which is spotted with red. Cats are as fond of it as of valerian.

Mint—grey blossoms, growing in thick clusters, separated by pairs of greyish leaves, smelling strongly.

Ground-ivy, or all-heal, Chap. VII.

Archangel, or dead-nettle, Chap. VII.

Wound-wort—a tall plant, with nettle-shaped leaves growing in pairs, the blossoms in whorls on a spike, dark purple, or crimson; and if you study them closely, you will see they are prettily-veined with white.

Hemp-nettle—a rarer sort, is sometimes found in corn-

fields; the corolla yellow, and the lip marked with purple.

Weasel-snout, or yellow dead-nettle—a plant every one knows.

Betony—a bright red purple flower, in a spike, on a simple stem, the leaves serrated, each on a stem from the root. It grows in woods.

Marjoram, Chap. VII. 51.

Thyme, } Chap. VII. 52.  
Basil-thyme, }

Melittis—a beautiful large flower, shaped much like the dead-nettle, white, with a large purple spot on its lip.

Skull-cap, Chap. VII. 51.

Self-heal, Chap. VII. 52.

*Order 2.—Seeds enclosed in a capsule.—Angiospermia.*

Bartsia—a small low reddish plant with dingy purple flowers, growing in dry rubbish.

Yellow-rattle—a yellow flower, on a swelling calyx, growing in meadows, called rattle, because the seeds when ripe rattle in their vessel.

Yellow-cow-wheat—much like the rattle, but it grows in woods, the calyx is not so swelling, the leaves are linear, and it has curiously pinnate bracts, the stems are black and wiry.

Eye-bright—is a little beauty, growing close to the ground in pastures; the blossom white, marked with brown and yellow, prettily cut at the edge.

Red-rattle—two kinds, large and small, the latter grows close to the ground, the former has a branching stem; both have notched leaves, and large handsome pink blossoms. They grow in marshes.

Toadflax, Chap. VII. 51.

Snapdragon, Chap. VII. 50.

Figwort—a tall, bushy plant, the stem hollow, and very square; the blossoms dingy red, looking rather as if they had been eaten off by insects.

Foxglove, Chap. VII. 49.

Broom-rape—a marvellous brown thing, that looks as if it never lived; blossoms, leaves, root, and all, of one pale brown; nothing flower-like about it but its yellow anthers, within their brown cave. The leaves are linear and brown, and the root is a most curious succession of scales. It fastens itself on the roots of broom and furze, and sucks their juices, instead of going direct to the earth itself. You may see its brown spikes on heaths and commons in June and July, and it is well worth examining.

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CLASS XV.—TWO SHORT AND FOUR LONG  
STAMENS.—*Tetradynamia*.

CRUCIFORM FLOWERS.

*Order 1.—Seeds in a capsule.—Siliculosa.*

Mithridate Mustard—a small white flower, growing in clusters on the borders of fields.

Shepherd's purse, } Chap. XXIII. 195.  
Treacle mustard, }

*Order 2.—Seeds in a long pod.—Siliquosa.*

Cardamine, or lady's-smock, Chap. XXIII. 194.

Water-cress, Chap. XXI. 194.

Stock, Chap. XXI. 190.

Wall-flower, Chap. XXI. 191.

Jack-by-the-hedge, Chap. XXI. 194.

Cabbage, Chap. XXI.

Mustard, Chap. XXI. 193.

Radish, Chap. XXI. 193.

Charlock—a yellow blossom that no one wishes for in their fields.

CLASS XVI.—STAMENS IN ONE BROTHERHOOD.—

*Monadelphica.*

Crane's-bill, Chap. XXIV. 198.

Mallow, Chap. XXIV. 201.

CLASS XVII.—STAMENS IN TWO BROTHERHOODS.—

*Diadelphica.*

BUTTERFLY FLOWERS.

*Order 1.—6 stamens.—Hexandria.*

Fumitory—the only plant of the class that is not properly a butterfly flower. It has two parcels of stamens, each bearing three anthers. It is a common weed in gardens, the leaves of a pale sea-green, much pinnate, and the blossoms of a pale red, tipped with a much darker colour, all smoky-looking, which is the reason of its name of fumitory, from *fumus*, smoke.

*Order 2.—8 stamens.—Octandria.*

Milkwort, Chap. VI. 41.

*Order 3.—10 stamens.—Decandria.*

Broom, Chap. VI. 40.

Furze, or Gorse, Chap. VI. 40.

Rest-harrow—an enemy to farmers, as it has a tough, spreading, woody root, that runs over neglected fields, and does arrest the harrow and plough. The stem, too, is tough and woody, very hard to break, as those

know who have tried to adorn an autumn nosegay, with its very pretty blossoms, the standard blush-colour, the wings deep rose-colour. They are about the size of furze blossom, and the leaves are pale green.

Vetch,  
Vetchling,  
Wild pea,  
Milk vetch, } there are many sorts, but you must be a better botanist than this book will make you, to know them apart.

Tare, Chap. VI. 41. Observe that this tiny little grey flower is not thought to be the tare of Scripture. That is believed to be a kind of grass like darnel, like wheat, but perfectly useless.

Bird's-foot—one of the smallest flowers to be found, growing on heaths, close to the ground, the leaves like tiny saintfoin, the blossoms white, streaked with rose-colour.

Saintfoin, Chap. VI. 42.

Trefoil, }  
Clover, } Chap. VI. 42.

Bird's-foot Trefoil, Chap. VI. 41.

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CLASS XVIII.—MANY BROTHERHOODS OF  
STAMENS.—*Polyadelphia.*

St. John's Wort, Chap. XXVI. 208.

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CLASS XIX.—COMPOUND FLOWERS.—*Syngenesia.*

*Order 1.—All the florets perfect.—Equalis.*

Dandelion, Chap. VIII. 60.

Oxtongue—a flower like a dandelion, the stem tall, branched, and prickly, the leaves embracing it, and their edge and surface roughened with prickles,

much like the tongue of an ox, the calyx very prettily folded.

Sow-thistle—dandelion-like, soft and juicy, its stem branched, an ox-tongue all but the prickles, of which it has only a few at the edge of the leaves, which have often a very pretty pink mid rib.

Lettuce—very small dandelion flowers, and leaves that everyone knows.

Hawkweed—dandelion-like, but of a pretty pale sulphur colour, and the stem quite dry, without the succulent juice of the others. The stems are simple, it grows in dry places, and the “clocks” are particularly beautiful, each seed bearing such a perfect star.

Lapsana—tiny dandelions on tall stems.

Wild succory—like garden succory, with a pretty blue flower.

Burdock, Chap. VIII. 60.

Saw-wort—a purple flower like a thistle, but with fewer prickles, and those chiefly at the edges of the leaves—whence its name.

Thistle, Chap. VIII. 59.

Bur Marigold, or Goldilocks—a yellow flower with a somewhat drooping head, and long lance-shaped leaves, growing in marshy places.

*Order 2.—Outer florets having pistils alone, inner florets perfect.—  
Superflua.*

Tansy—yellow star-like flowers.

Wormwood—grey pale downy oft-divided leaves, light yellow flowers.

Cudweed, Chap. VIII. 58.

Flea-bane, Chap. VIII. 57.

Groundsel, }  
Ragwort, } Chap. VIII. 57.

Elecampane—a fine large yellow blossom like a sunflower.



Golden Rod, Chap. VIII. 57.

Sea-aster—a grey flower, like a Michaelmas daisy,  
growing in sea-mud.

Daisy, Chap. VIII. 55.

Ox-eye, Chap. VIII. 56.

Corn-Chrysanthemum, Chap. VIII. 57.

Camomile, Chap. VIII. 57.

Yarrow, or Milfoil—heads of white flowers, so small that at first sight it might almost be taken for an umbellate flower, now and then a little tinged with pink. It is the leaf that is its peculiar beauty, one long mid rib, feathered twice in two divisions of long pointed segments, each bearing almost a thousand little leaves in one, from which its name milfoil—1000 leaves.

*Order 3.—Outer florets empty.—Frustranea.*

Knap-weed,            }  
Corn-flower,        } Chap. VIII. 61.

CLASS XX.—STAMENS ON THE PISTIL.—*Gynandria.*

(ORCHISES.)

Orchis, Chap. XXVII. 214.

Tway-blade, Chap. XXVII. 217.

Ophrys, Chap. XXVII. 218.

Ladies'-tresses, Chap. XXVII. 217.

Helleborine, Chap. XXVII. 118.

CLASS XXI.—STAMENS AND PISTILS IN DIFFERENT  
FLOWERS ON THE SAME PLANT.—*Monoccia.*

Spurge, Chap. XXVIII. 222.

Bulrush, Chap. XXVIII. 224.

Sedge, Chap. XXVIII. 226.

Bur-reed, Chap. XXVIII. 225.

Alder, Chap. XXVIII. 227.

Box, Chap. XXVIII. 229.

Nettle, Chap. XXVIII. 227.

White Bryony, Chap. XXVIII. 228.

Arrow-head, Chap. XXVIII. 229.

Arum, Chap. XXVIII. 229.

Oak, Chap. XXVIII. 230.

Chestnut—it has thick green catkins, and is a handsome tree, Chap. XXVIII. 230.

Beech—a catkined tree, bearing nuts called beech-nasts. The leaves small, the bark smooth, Chap. XXVIII. 230.

Birch, Chap. XXIX. 238.

Hazel, Chap. II. 9.

Pine, Chap. XII. 90.

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CLASS XXII.—STAMENS AND PISTILS ON DIFFERENT PLANTS.—*Diœcia.*

Willow, Chap. XXIX. 235.

Butcher's-broom, Chap. XXIX. 87.

Mistletoe, Chap. XXIX. 83.

Hop, Chap. XXIX. 238.

Black Bryony, Chap. XXIX. 239.

Poplar, Chap. XXIX. 237.

Dogs' Mercury, Chap. XXIX. 240.

Frog-bit, Chap. XXIX. 240.

Juniper, Chap. XXIX. 242.

Yew, Chap. XXIX. 240.

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CLASS XXIII.—FLOWERS SOMETIMES PERFECT, SOMETIMES WITH THEIR PARTS SEPARATE.—

*Polygamia.*

Pellitory, Chap. XXIX. 245.

Orache, Chap. XXIX. 245.

CLASS XXIV.—*Cryptogamia.*

## UNSEEN BLOSSOMS.

*Order 1.—Ferns.*

- Hart's-tongue,                    } Chap. X. 70.  
 Scaly hart's-tongue,            }  
 Royal Osmond, or Flowering-fern, Chap. X. 71.  
 Polypody, Chap. X. 72.  
 Black maiden-hair, Chap. X. 72.  
 Spleenwort, Chap. X. 72.  
 Lady-fern, Chap. X. 73.  
 Shield-fern, Chap. X. 73.  
 Brake, Chap. X. 74.  
 Blechnum, Chap. X. 75.  
 Adder's-tongue, Chap. X. 76.  
 Mountain parsley, Chap. X. 76.

*Order 2.—Mosses.*

- Hypnum, Chap. IX. 68.  
 Bryum,                            } Chap. IX. 69.  
 Swan's-neck,                    }

*Order 3.—Club Moss.*

- Fox-tail, Chap. IX. 69.

*Order 4.—Horsetail.*

- Horstail, Chap. XXX. 246.

*Order 5.—Lichen.*

- Liverwort, Chap. IX. 66.  
 Lungwort, Chap. IX. 66.  
 Rein-deer moss, Chap. IX. 66.  
 Cup-lichen, Chap. IX. 66.  
 Tripe-de-roche, Chap. IX. 66.

*Order 6.—Fungus.*

- Mushroom, }  
 Chanterelle, }  
 Ovate-toadstool, } Chap. XXX. 250.  
 Oyster-toadstool, }  
 Velvet-stalked, }  
 Orange, }  
 Boletus, Chap. XXX. 250.  
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*Order 7.—Sea-weed.*

- Sea-tangle, Chap. XXXI. 253.  
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